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THE

WESTERN QUARTERLY REPORTER

OF

MEDICAL, SURGICAL,

AND

NATURAL SCIENCE.

SUPPORTED BY PHYSICIANS AND NATURALISTS OF THE WESTERN COUNTRY.

EDITED BY

JOHN D. GODMAN, M. D.

Member of the Academy of Medicine of Philadelphia, Honorary Member of the Medical Society of Maryland, Honorary Member of the Baltimore Medical Society, Member of the Academy of Natural Sciences, Philadelphia, late Professor of Physiology to the Philadelphia Museum, Honorary Member of the Cincinnati Medical Society and of the Lexington Medical Society, &c.

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XUM

TO THE CITIZENS,

THE MEMBERS OF THE LEARNED PROFESSIONS,

AND THE

CULTIVATORS OF GENERAL SCIENCE

THROUGHOUT THE

WESTERN COUNTRY,

THIS WORK,

DEVOTED TO THE

ADVANCEMENT OF KNOWLEDGE,

IS RESPECTFULLY

DEDICATED.

XUM

Exch
Boston Medical Society
4-29-1959

PREFACE.

To assist in advancing the great cause of improvement and science, is a pleasing occupation under any circumstances, but more especially so in a country like this, where society is yet so young and the kingdoms of nature so partially explored. The time which has elapsed since its first settlement is so short, and the changes effected have succeeded each other with such rapidity, that credit can scarcely be given to the fact, that forty years ago, the places now enlivened by cities, towns, villages and all the active bustle of society, were shadowed by ancient forests, re-echoing with the howls of ferocious animals—the more discordant and terrifying yells of savage men, or the sullen roar of mighty rivers rolling their tributary waters to the ocean.

Such is, however, the truth. An immense population, widely extending cultivation, cities and manufactories, a rapidly advancing state of society, and an increasing refinement, are to be found here. A country singularly interesting to the moral, medical and natural philosopher, reaches to vast distances on all sides, and the progress of time will shew, that those who anticipate the future wealth and strength of this region, have not been mistaken in their views.

It is not singular that a work like this is *now* published, but that it has not been done before. Where there is so much room for observation and experiment, so great a population to be instructed or excited to emulation, and so many persons eager to assist by contributions of knowledge or pecuniary support, nothing but want of proper exertion, could occasion a failure.

But a periodical work here, exactly similar in character to those of older countries, is neither needed, nor likely to prove

XUM

beneficial. Treatises, which have but a remote connection with practice; facts strung together at random and without reference to guiding principles; matters merely curious, substituted for things positively useful; mawkish efforts to make *original compositions* out of "stories ten times told," and that systematick drivelling so often resorted to for the purpose of stuffing out a number to a goodly size, here, must prove injurious by preventing the origin of works conducted with more regard to the wants, and circumstances of the time.

Though a mass of our society is still unpolished, there is no deficiency of energy or mental resource. When well directed and engaged in pursuit of an object, there is no fear of failure from lack of industry or talent. This direction of energies, is all that is needed by the youth of this country. Living in a situation where the vastness of their forests, the altitude of their mountains, the immensely extended surface of their plains, and the irresistible flow of their rivers, insensibly fill their minds with great ideas and an utter impatience of controul, they bid fair to give evidence in future, of high attainments in useful and ornamental knowledge.

Our chief object, is to awaken the lovers of science and admirers of nature, to an appreciation of the treasures which are profusely lavished around. To call their attention from what is merely said, to what may be really done—to invite those who love their race and their country, to exert themseves for the advantage of the one, and the glory of the other; to diffuse among them, that refined enthusiasm which shrinks least when difficulties and dangers are strongest; and to collect a rich repository, where may be found perennial sources of enjoyment, in the contemplation of all that is useful and pleasing, in nature and philosophy.

To be called visionary, or vain, is the least of the evils we have to dread in our outset. To deviate from a beaten track, is at all times sufficient to startle the fears of the prejudiced and faint-hearted. Fortunately for us, we live in an age and country where innovation on established follies, draws down nothing but harmless thunder—noise, but not fire. Truth is too little affected by it to be disturbed, and mankind are convinced experimentally, that folly never is changed into wisdom, by age.

The intention of our paper being such as we have stated, it will of necessity be neither of party, nor place. As a vehicle for the conveyance and diffusion of knowledge, and the means of bringing scientifick men, of the great north and south western sections of country into closer acquaintance, it will be always open for communications, on all proper subjects. The topicks discussed, will of necessity be very various, but utility will always be a leading consideration, in selecting them. Whatever appears best suited to advance the interests of the professions, and of general science, shall claim our earliest regard, and foreign improvements will be introduced to the notice of our readers, as speedily as circumstances will allow.

It is most particularly our wish to give descriptions of this great region, which may be relied on as accurate. To gather from various sources, all the facts that can be ascertained in relation to peculiarities of climate, of soil and productions; to give to citizens of our own country at a distance, and to foreigners abroad, correct ideas of the importance and probable future greatness of our land. In this laudable attempt, we confidently anticipate contributions from the liberal and enlightened in every section of the western world, which has till now. had no paper consecrated to its medical and natural history. The observations and essays of our scientifick and professional inquirers, have hitherto served to adorn the journals published at a great distance. Now, an opportunity is offered of giving them to the world through the medium of a paper, established in and for the West.

We are very desirous of inviting the attention of the profession to the subject of medical jurisprudence, and shall devote a portion of our work to this subject. The English writings that we have had the opportunity of examining, are in general very barren and limited. We shall present our readers with some of the researches of the French and German writers, by *translations* from their works—preferring this mode, to that of garbling them, and passing them off as our own, which we have seen heretofore done, in more than two or three instances.

We shall sometimes review such works as may be worthy of notice for their excellence, or may be prejudicial from errours,

to the true interests of Science. The object of these reviews shall be to subserve the great cause of truth and knowledge—not to shew how learnedly fault may be found. If a work be good enough for praise, or bad enough for blame, what is thought to be the due portion of either, shall be awarded with as much impartiality as possible, and uninfluenced by any wish but that of doing good. All personalities, or vague and injurious inuendoes, shall be entirely rejected.

The subsequent numbers of the Reporter, will be enriched by many valuable disquisitions on subjects connected with the improvement of the West, and we expect that the patronage of a discriminating publick, will enable us to accompany each number with engravings of such objects as are interesting and useful.

As to the manner in which our first attempt is to be received and estimated abroad, we feel undisturbed. If we have new facts to adduce, new modes of thinking to offer, or new modes of action to propose, they are to be examined and tested by the rules of right reason and common sense, which are confined to no location. If there be some sneers at propositions we make, or plans we lay down—a sneer is not an argument, any more than assertion is proof. In short, if our mode of proceeding, however new, be supported by reason and confirmed by actual experiment, we are sure to receive that greatest of all human justifications—success.

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ARTICLE I.

MEDICAL EDUCATION.

THERE was a period when the name of "Physician" was synonymous with that of "Learned man," when the members of the profession frequently added wisdom to their learning, when he who aspired to be the guardian of publick health, gave some testimony by his preparatory studies, of his anxiety to stand well in publick respect. Nor was this the period, when physicians were highly learned in every thing but their own art. We refer to the time when the human race was adorned by the life and actions of Booerhaave, of Cullen, Monro, Black, Herberden, and a host of others in Europe, and whose literary acquisitions and gifted talents have been so frequently paralleled in our own country, by such men as Miller, Rush, Barton, &c.

Within the last half century, a wonderful change has been wrought. So many brilliant discoveries in Philosophy and Morals have been made, that an entire new aspect is worn by *the Medical Profession. It appears that all the necessity for a*

finished education—long and ardent study—careful and discriminating investigation, is removed. Nothing seems requisite but the possession of the titular distinction, and a smattering of the routine which has been for a long time pursued, by those who have gone before. The great responsibility of those who take the fate of sick men in their charge, is removed. The science is reduced to a state of such condensation, that a few months, one or two years, is sufficient to put any youth in possession of its most valuable secrets, and its most energetick weapons. In fact, even this trifling mortification is not always submitted to. This delay is dispensed with. Some read a few books of medicine, and because there are no laws to prevent it, or no persons to put the laws in force where they exist, assume the name and responsibilities which attach to the profession—feeling and fearing nothing.

These, at least, are the inferences we are obliged to draw from the state in which the medical profession exists, in a vast majority of examples. To be convinced of this, it is only necessary to look at the facts which are daily presented to the eyes of all. It is not wonderful that the profession in general should command so little respect, or be so often regarded with distrust. There is no wonder, that the science is looked upon as conjectural and empirical, when out of the whole number that belong to the profession, and have been regularly inducted, so few are able to give a reason for their practice, or shew that they are guided by sound principles.

The root of this evil is deep. It is planted in the pride and ignorance of parents in many instances, who are willing to have one doctor in the family, although entirely unable to comprehend the necessity for education, talent and industry. Again, it springs from the laziness of those who would be physicians without effort, and who not being content to confess their neglect, shelter their stupidity from observation by heaping abuse or ridicule on all that is learned or wise. In this way, many pass off their pertness for wit, and hide their professional poverty, by sarcastic reflections on those who have been at the trouble of acquiring knowledge.

Another lamentable source of this evil, is the errours committed by some really great men, whose minds however virtu-

ously correct, were not possessed of sufficient perspicacity to foresee the consequences that might flow from their opinions. Thus some persons of high standing—learning—integrity—professional skill and literary reputation, have published their opinions that classical learning is of no moment to a professional man. What is the consequence? Every one disposed to be lazy and to gain the honours of a profession without effort or expenditure of time—screens himself by bringing forward these opinions and such examples. They do not reflect, that the very persons of all others who publish such opinions, have been most usually men of the most polished education, drawing their flow of words and facility of expression entirely from the things they are endeavoring to decry. An errour of this sort once committed to print, whatever might have been the circumstances that originally caused it, still continues to do mischief, however soon the writer may have discovered and repented of his folly.

A more pernicious cause of this evil to society, is the manner in which the great portals of the profession are thrown open. The requisitions are too few. The quantum of preparation demanded is too small. The time to be spent is too short. The acquisition of university honours is too easy. The need of money is too great to allow the heads of institutions to do as they ought. "A conscience is too expensive an article," and the number of rival institutions is such as to prevent any one, from making an effort to render the profession more respectable. Yet the most certain way of doing this—the surest mode of giving real value to the diplomata of any institution, would be that which is most correct—though it might not be the most profitable.

Let us inquire into the condition of those who are in this slight manner ushered into the world of business. Some portions of their preliminary studies they cannot hope to renew when engaged in practice. Some branches of their profession they may never be again able to study for want of the proper books or apparatus. Some things on which important principles and practices depend, are only to be seen where their Medical education is usually *terminated*, but where in reality it ought to begin. Yet, however these have been neglected, if

a candidate is prepared to go through certain forms—answer certain questions—assent to certain opinions—and has spent a certain portion of time and money—he becomes forthwith a Doctor "*præditus ommibus juris et privilegiis rite ac legitime consequendis.*"

He begins professionally to act, but has he ever yet learned to think? He assumes great responsibilities, but they give him no uneasiness, because the *University* has testified him to be qualified to practice and to teach, and acceded to him all the rights and privileges of the profession. By this we have no intention to hint that there are not a vast number of honorable exceptions to such a state of things. There are very many that have not enjoyed the advantages of education who would do honor to their race and Science. There are many who in spite of the laxity or inefficience of publick institutions, have the conscience to improve their time and to exert beneficially their talents. This is no justification. As well might it be said that because some men have swam over rivers or crossed on logs, that therefore a bridge is useless, or a log the most excellent, as to assert that because a few men have done well without education—education is needless to all. How much better might he do with education, who does passably well without it?

If physicians are, as they are often said to be, irreligious or sceptical, it arises from any thing but too much learning.—Those who undertake to study our profession, without the requisite preparation, are easily led to deceive themselves, while investigating instruments of action, by supposing themselves engaged with the cause. If they examine the beautiful arrangement of structures in the human frame, they are bewildered rather than enlightened. They forget in their consideration of the end effected, the exquisite foresight and design displayed in fitting the means thereto. Such reflections are likely to escape the mind of a man unaccustomed to observe the general relations of things, or the general principles by which masses of apparently dissimilar facts and operations are held together. Every new perception, to him, involves the necessity of a separate theory, and while looking at these theories, he is led away from the design exhibited in the whole con-

trivance. If we ask the question, what has been the standing of such men as have been most famous for their scepticism, in our profession? We shall find as a general truth, that they have been least celebrated for the possession of liberal and extensive education. On the contrary, if we look at the most pious and enlightened of our great physicians and naturalists, we shall uniformly find, that in learning they rank with the highest.—Whose names can be paralleled with those of Boerhaave, Sydenham, Cullen, Morton, Monro, and Heberden? Yet no men have been more uniformly pious in life and practice—no men more correct and orthodox in belief. Even in the severely abstract sciences, of all others most calculated to chill and deaden such lively feelings as would induce men to yield assent without reflection, who can be adduced as a more splendid, and almost awful example of glorious learning and unfeigned and humble piety than Sir Isaac Newton? Have we not a host of scarcely inferior names that might be brought forward? Who are Euler, and Bernouilli, and Locke, when compared with the ephemera who have cast a stigma on the votaries of science? These last dwindle to such insignificance when compared with such men, as to excite a feeling of pain when we attempt to estimate the difference.

Education does not mean the acquisition of any particular set of facts. The true sense of the word is "leading forth."—Any process by which the mind is best led forth from ignorance to knowledge, from sensations to combinations—from facts to principles, and from principles to practice, is the best system of education. He who has been taught to think to the point, judge correctly, and discriminate between false and true, is well educated—or is *wise*. He who has travelled over many books, stored up many facts, seen many things, and not acquired the abilities we have just spoken of, whatever time he has occupied, or forms he has gone through, is uneducated—though usually called *learned*.

Which then is the best way to acquire this desired education—this leading forth of mental energies? By attending early to classical literature. To make this more intelligible we must offer some further observations.

The human mind is progressive in its developement as in its acquisitions. In spite of the efforts of those whose parental fondness, and blind partiality for their offspring, prompt them to convert babes into youths, and youths into men, the mind can only gain energy and comprehensiveness from time and well directed industry. It is true that a flippancy of speech, and a boldness of demeanor, totally foreign to the bashfulness of youth, may be taught. Yet it is seldom succeeded by any lasting good—though there be foliage for a season, there is seldom or never fruit. These hopes of early maturity—these pert replies and remarks, which fond affection interprets to be presages of wisdom, are not generally succeeded by the much desired strength and manhood of intellect.

It is during boyhood that the foundation is properly to be laid. Memory is first to be called on, and reason is perfected as the powers of the mind ripen. Facts must be stored up before their relations or governing principles can be appreciated. To secure this, the mind should be occupied in the search while it is yet young—before the novelty of things is destroyed, and before other feelings usurp the sway of the man. This is the time at which a classical education may be begun to the greatest advantage. However harsh it may be at first, yet it soon becomes more and more pleasing, and having advanced to a certain point, there is no danger of retreating.

The student while engaged in acquiring a knowledge of classical learning, is engaged in a pursuit whose beneficial influence will be felt throughout life. In storing up words, he is necessarily becoming acquainted with things. Investigations of the structure of sentences, teaches him to think with precision, ere he is aware. The style of his author and his subject alike become indelibly impressed on his mind—and instead of merely learning a language, he is gaining an acquaintance with manners, customs, policy, talent, and modes of thinking—acquiring habits of industry and attention that will not readily fail, and feelings of laudable ambition by no means easy to smother.

In addition, he will acquire a habit of attending to the true meanings of words, and by consequence to the most accurate modes of thought and expression—all of which will admirably conduce to the advancement of his future reputation.

A very mistaken notion is prevalent in the world, that none but persons possessed of a peculiar talent or genius for certain studies, can pursue them to advantage. This notion is often made a cover for idleness. Where nothing but application is needed—we are told by the party that he has no *talent* for a study. Why? He has not been inspired with a knowledge of it—he cannot learn it at a first glance—it requires some industry to attain, and therefore he cannot go on, as he "has no *talent* for it." This plea is extremely ridiculous. Men are indeed differently constituted, yet there is not so great a difference in capacity, but that nine out of twelve, are capable of attaining the same end, by using the same means.

In fact, if we look at those correctly who have been called great geniuses, we shall frequently discover that their peculiar cast of mind has been owing to apparently trifling circumstances, and not to any wonderful difference in original intellectual energy. Beyond a doubt, the minds of Johnson, Sir W. Jones, Gifford, Jeffries, and others of their character, were naturally of the strongest frame, yet it must never be forgotten that they all were extremely industrious, and that a very great proportion of their success is attributable to unwearied application. The same men if born to large fortune and accustomed from their infancy to luxury and indolence, might have passed unnoted through life, and left no blank space, when withdrawn from it.

Impressed by the necessity and importance of these truths, the way to gain the summit of our wishes, is to begin right. Having begun, perseverance is all that is necessary to success. A methodical distribution of time, habits of staid and regular study—a careful selection of books, and an accurate understanding of what we peruse, will enable any one to gain a large portion of good education. If we are discouraged from expecting to be perfect in many things, by Horace,* we can vigorously advance on the route we have selected, supported by the cheering remark of Bion.†

* "Non omnes possumus omnia." [No one can effect all things.]

† "Μελετη το Παν." [Nothing is impossible to industry.]

ARTICLE II.

SURGICAL ANATOMY.

Remarks on a treatise of Surgical Anatomy, Part 1st. By Abraham Colles, one of the Professors of Anatomy and Surgery in the Royal College of Surgeons, in Ireland; Dublin, 1819, 8vo. pp. 179.

WE are the more pleased to invite the attention of our readers to this work, because we have never seen Mr. Colles' name referred to, unless incidentally, nor the merits of his book discussed with the respect that the importance of his subject demands. Small and unpretending as the volume is, the author deserves our gratitude, both for awakening an interest in favor of a much slighted branch of study, and for the manner in which he has performed his task.

Before making any remarks relative to this volume in particular, it may be advantageous to such of our readers as are just commencing the study of the profession, if some observations are premised on the character of our Anatomical Works in general. These will enable them to estimate with correctness the treatise under consideration, and to understand more definitely what we mean, by asserting that although Anatomy has been studied for a long time, with much order and perseverance, its real importance and connection with medicine are but little observed, and the most advantageous method of investigating the subject has been too seldom pursued.

The great standard works on Anatomy, in most general use, are those of Monro, J. & C. Bell, Portal, and Bichat. There are, it is true, a multitude of others possessing peculiar merits, yet not sufficiently general to require our present notice. The great systematic writers mentioned have each singular excellences and striking defects, which proportionably add to, or detract from their usefulness. The system of Monro, or the Edinburgh system as it is called, is minute and copious, containing a great mass of Physiological matter, both entertaining and useful to the student. Yet the dryness of its style, the tediousness of its descriptions and the frequent looseness of its Philosophy, prevent it from being as useful to the pupil as it may be to one somewhat advanced in his anatomical learning.

To these disadvantages may be added, that the extreme rigor with which the various portions of Anatomy are separated from each other, tends to produce an injury of which we are presently to speak. The system of Anatomy by Messrs. John and Charles Bell, is by far the most useful book to persons who are entering upon the study of this science. The easy and winning style in which it is composed, the accuracy and neatness of the descriptions, the careful avoidance of that jargon so frequently used by anatomists, and the happy illustrations and digressions of these writers, throw a charm over their pages that few can resist. There are few persons, who cannot look back with pleasure to the period in which these volumes were the subjects of their attention. Few teachers of Anatomy exist, that might not be extremely happy could they imitate that fluency and ease which constitutes the peculiar felicity of the Bells. Yet there are defects in these writings which are rendered more perceptible, because of their great inconsistence with the general excellence of their character. In many parts, it seems as if the author had written in too great a hurry to allow him to examine the correctness of the philosophy he is teaching, and in consequence, this philosophy is carelessly and incorrectly deduced from slight premises: witness what is said about the accidental formation of Sutures—the impression of Arteries on Bones, &c. In other parts there is a swelling redundancy which induces something of fatigue—while again, there are portions by which we should be highly instructed, if the author had only bestowed on them more of his time. Still it is by far the best *system* of Anatomy we have. It is thought by many to be too extensive a work, because of its embracing too great a range of philosophizing on the physiology of the human body. From this opinion we entirely dissent, esteeming it the more valuable, because one of the first that awakened attention properly, to the connection of the facts and principles, that never should be severed, in the mind of the student, from each other.

The "Anatomie Medicale," of Portal, is also a valuable work, though different in character from the preceding. It contains, in addition to the Anatomy, which is minute even to tediousness, a mass of Pathological fact, which may be very useful to the pathologist, and make his work well worth pera-

sal on this account. But we cannot recommend his work as suited to the mere student of anatomy, in consequence of the defects which result from its peculiar arrangement, and tedious length, which are more irksome in consequence of the author's attempt to give the "*confrontation*" of all the muscles, &c.—Bichat's "Anatomie Descriptive" is free from many of the faults of Portal—but it is so extremely rigid and philosophical—so coldly correct and drily accurate—that instead of inspiring, it depresses enthusiasm to dulness. Few persons, unpractised in anatomy, are willing to undergo the fatigue of studying this work, although, as a severe catalogue of anatomy, it is always a useful book of reference. But his "Anatomie Generale" compensates us for all that may be wanting in his other works. It is in this splendid monument of his genius, that we see the true Philosophy of Anatomy, while we are astonished at the mighty intellect developed in so young a man. In this work he separates the system into its different textures, and applies himself to the examination of each. There is nothing can escape him relative to peculiarities of action. He appears in possession of an extraordinary talent of tracing effects to causes; and when unable to accomplish his purpose, his subject is never obscured by his efforts. His reasonings are always conducted in the most severe and logical manner; and as he disclaims all connection with fancy, or reliance on imagination, we are sure of not being bewildered in the mazes of hypothetical conjecture. The "Anatomie Generale," though possessed of so many admirable qualities, is of too high a cast to be advantageously used by those who have not made a considerable progress in anatomical science, as well as those who are not accustomed to the severest abstractions in philosophy. His work is never subtle or sophistical, though it is always profound; and he who desires to reap the harvest which may be gathered from this wonderful scrutinizer of nature, must not expect it without some labor on his own part. To a teacher of Anatomy and Physiology, there is no work which can be so valuable, and it is to be deplored that this work is comparatively little known or read. The writer of this article will ever feel grateful to the amiable and learned friend,* who first drew his attention to the worth of Bichat.

* Professor R. M. Patterson, of Philadelphia.

We have purposely avoided to introduce any observations on the work of our illustrious anatomist, Dr. Wistar—whose work was confessedly a compilation for the particular use of his class. As he has not even altered the descriptions of Monro, Innes, &c. where they suit his purpose, many of the remarks made relative to the Edinburgh system are applicable to his. For the use it was intended by its author, it is an excellent work, that is, as a text book to a course of lectures, and not a system suited to teach the science at a distance from the lecture room.

As to the other labourers in our science, who have been engaged in investigating particular parts, we need make no other remark at present, than that their exertions are to be valued in proportion to the usefulness of their descriptions and the connexion they have maintained with the science of Medicine. In proportion as such observations have been entirely separated from every thing else—in proportion as their writings have been made harsh and unpleasant by attempts at extreme minuteness and overstrained accuracy, precisely in the same degree do these writings tend to injure the science by disgusting its votaries. Wherever Anatomical knowledge is sought after as the *end* to be desired, instead of as the *means* of extending the usefulness of our profession—whatever may be raked together by such scientifick avarice, can in no way compensate for the evil resulting from the distate to the science, such conduct inspires. Hence we find, that the works of Ruysch, Morgagni, the Hunters, the Monros, and the Bells have done more for the science, because engaged in tracing out the great principles and connexions of Anatomy and Medicine, than all the *atom-seekers*, who have filled volumes with harassing descriptions of hairbreadth or anomalous variations of structure, without the remotest possibility of conferring any advantage on mankind.

We shall defer noting the execution of Mr. C's. work, until we have made some remarks in relation to the method of pursuing the study of Anatomy, more especially as to the manner in which Anatomy should be taught to pupils by demonstration.

It is usually the practice for lecturers on Anatomy to have their subjects fairly dissected, before they are presented to

the class. In order that this be done with the neatness thought so requisite for public exhibition, almost every part, not immediately concerned in the demonstration, must be cut away. Thus when Muscles are the subject of the lecture, the skin, fat, vessels, fascia, &c. are cleared away, in consequence of which there is nothing presented but a number of clean fleshy bodies, depending irregularly from the bones. The student may learn accurately enough, the name, origin, and insertion of these muscles, but of the Anatomy of the member to which they belong, he has nothing but the most indefinite ideas. To prove this, it is only necessary to observe how such a student proceeds in dissecting, even when assisted by the systems of Anatomy. We find him in this case entirely at a loss. He sees a great number of substances which have never been demonstrated to him, and the very parts well known to him by name, are placed in situations so entirely different from any thing he has been accustomed to, that they only throw him more into confusion. In his books, to which he recurs for aid, the same state of things exist. What are placed together in the description, are by no means near to each other in the subject. He lays aside the integuments of the fore-part of the neck and finds the digastrici. These are described as movers of the lower jaw; but they are entangled with two other muscles arising from the styloid process. These are described at some pages distant from the other, and when he finds them described, he sees no mention of the substance (the submaxillary gland) which in part conceals these muscles from view. It is not uncommon for students in this situation to make a few desperate efforts and relinquish their dissections with disgust. They attribute this to the difficulty of the subject, when it is entirely the fault of the books. In systems of Philosophical Anatomy where the Muscles, &c. are arranged as they are concerned in particular functions, the student need not look for much help. Parts which lie in immediate contact, are separated in these books by whole pages, so that the labor of learning from such systems is too great for any spirit, however devoted, to endure. As to learning Anatomy, from any more description, it will never be spoken of, but by persons entirely ignorant of the subject.

To teach Anatomy, with advantage to the student, it should be taught with the knife. By this we mean, that instead of the usual SCHOOL-DISSECTIONS where the parts are all picked to pieces, and no vestige of the Anatomical relations are left, the teacher should perform his dissections before the eyes of his class. His explanations should accompany these displays, and the consequence would be, that his pupils would speedily and with little difficulty become *Anatomists.* We must not be understood to say that the teacher should lecture on the parts exactly as they fall under his knife. He may in the ordinary manner begin with the muscles—but the pupils must see *what he removes*, and *how* he removes *other substances to display these instruments.* He may lay aside muscles which do not belong to the functions of the part on which he is engaged—but his class must see the *manner* in which it is to be done, and the position from which they are taken. This is not so difficult as may be imagined. The practicability of it has been satisfactorily demonstrated in Philadelphia by the writer of this article, to a highly respectable class, and subsequently in this city during the present session. It is true, that more industry *is required from the Professor, and some practice in the use of* the knife. The advantages which accrue to the class are a sufficient compensation to any teacher, whose feelings must be dull indeed, if they are not gratified by the rapid improvement of his pupils.

It is because Mr. Colles is the first to call the attention of the profession to the true source of error in relation to Anato*my, that we think him particularly deserving of respect. We* are confident however, that many honest, though weak minded men have fallen into misfortune by attempting to imitate his example. Not thoroughly understanding the principles on which his investigations are founded, they have rushed to the very extreme of the error he deprecates. They have in several instances gone astray in the minuteness of Anatomy, and then buried themselves beyond the possibility of ever being discover*ed, in technical jargon, rendered ten times more obscure, by* their untaught efforts to make *new words* expressive of their ideas.

In his "Plan of Study" Mr. Colles makes the following admirable observations, "The profound and comprehensive mind of the philosophic Bacon, having discovered and demonstrated the necessity of methodical arrangement in the cultivation of the sciences, anatomists hastened to avail themselves of its advantages; they accordingly divided this science into several distinct branches, as Osteology, Myology, Neurology, corresponding to the different distinct parts of the animal frame.—These divisions they termed Systems. Each system they described separately, without taking any notice in this description of its connexions with the other systems, unless where it happened that, that which was the immediate subject of examination, should have remained absolutely unintelligible, without such a reference. And succeeding anatomists have ever since continued to tread implicitly in the footsteps of their predecessors. By these meaas we are certainly enabled to examine the several parts with accuracy, and to describe them with a precision before unknown. But though the description of each particular part be now more perfect, yet the plan is still so far defective, that the description of any one part seldom reminds the student of any other, the examination of any one system seldom leads him to trace its connexions and relations with the other systems, nor do so many detached views of the several parts enable him to take any general and connected view of the whole. Thus, the student who has been shown the distribution of the venous, arterial, and nervous systems of the arm, does not know how each of them lies with respect to the other, at the bend of the elbow, and therefore he knows not how he should attempt, in cases of aneurism, to pass a ligature round the artery, without at the same time including its accompanying nerve, which communicates sensation to the principal part of the limb. Nor can he, in the common operation of bloodletting, account for that sharp pain of which the patient particularly complains, when the basilic vein is opened, because these detached descriptions of the different systems did not lead him to observe, that some considerable branches of the nerves run down along the face of this vein. In short, an attempt to explain the nature and structure of the animal machine, by dividing the several parts of which it is composed,

into distinct classes, and then giving only a detached and unconnected description of each class, without ever considering them as the component parts of one organized whole, is, in my *mind, as preposterous and unavailing, as would be an attempt* to explain the mechanism of a watch, by taking it to pieces, and giving a separate description of every particular wheel and spring, without afterwards attempting to show by what contrivance the one moves the other, or how each wheel contributes by its particular motion, to regulate the general movements of the whole machine. Is it then to be wondered at, that a plan so little calculated to excite industry, or stimulate curiosity, a plan which so far from showing the subservience of anatomy to surgery, does not even teach anatomy itself as a distinct science; a plan which leaves the whole weight to press on the memory, and that too, in the most unfavourable manner, should have but few attractions for the youthful student? Is it surprising that he should consider the study of the science a drudgery rather than a pleasure? That he should take it up with disinclination, and turn from it with disgust? In fact, the student who has been employed in acquiring an anatomical knowledge of the different divisions of the human body, has but encountered all the difficulties, without securing any of the benefits. For such a plan of study can neither enable him to *form a perfect idea of the structure of any part of the body;* nor can these partial and detached views of the anatomy, in any degree qualify him to perform a surgical operation. The study of anatomy too generally ends at that point where it begins to be useful." These remarks are perfectly correct, and will enable us to understand why it is, that so little advantage has been derived from a vast number of dissections and engravings, as well as why the connection of the science of anatomy with the practice of medicine and surgery is so little understood.

Mr. Colles' work, whatever be its defect otherwise, has eminently the advantage of any other book of dissections, in this, that he describes the parts exactly as they occur, he guards the student against embarrassment and confusion from any appearance he may observe, and in general gives his directions in such a manner as to enable the student to proceed successfully. The book of dissections by Mr. C. Bell, which

was the best until the appearance of Mr. Colles' is of too general a nature to be of much assistance to a student, dissecting for the first time. He pre-supposes, almost every where, that the student is possessed of a considerable acquaintance with the subject, and his remarks are not only desultory, but his directions are often destitute of precision. If Mr. Colles should continue his work and complete it, the book of Mr. Bell on dissections, will be comparatively of little use. Until that time we may make use of both with advantage.

Surgical Anatomy, we believe to have been first *properly* introduced to the notice of the profession by Mr. Astley Cooper in his splendid work on Hernia. This, although too expensive ever to be very generally known in this country, has been an extremely useful work. From Mr. Cooper's descriptions, we doubt not, Mr. Colles took the hint of his "Surgical Anatomy."

This treatise of Mr. Colles, besides a preliminary address and "a plan of study," contains the Surgical Anatomy of Femoral, Inguinal and Umbilical Hernia; of the abdomen, thorax, neck and throat, pelvis, organs of generation and of the perinæum. Accompanying which there are many excellent surgical cautions, and directions for the performance of the different operations connected with the part described.

In the surgical anatomy there are some things in which Mr. Colles differs very materially from other Anatomists, and especially, in relation to that portion of the fascia lata, which is called the falciform process, semilunated edge, or Hey's ligament. Mr. Colles states, that "the iliack portion of the fascia lata is continued across the front of the femoral vein, and is attached to the pubick portion of the same side of this vessel." In numerous dissections of these parts, we have never been able to discover the state of things described by Mr. Colles. After removing the fascia superficialis with the greatest care, we find nothing but the lymphatick glands situated directly over the falciform process, and when these are raised, we have the accurately defined margin of the falciform process exposed. Not only so, but the process may be felt without dividing the cellular substance that retains the glands. The cellular substance connected with these glands, frequently has a consider-

able degree of strength, as well as a fibrous structure, but is evidently not a continuation of the iliack portion of the fascia lata, as it is as much attached to the skin as to any other part. The fact is, that the insertion of this fascia into Paupart's ligament, *does not extend farther than to the femoral vessels.* It here covers the surface of the pectineus muscle, and by consequence, the hernia, unless contained in the sheath of the femoral vessels, is anterior to the pectineus muscle, and on the outside of the fascia lata. In a conversation with one of the excellent and minute practical anatomists in Philadelphia, Dr. Lawrence, in relation to Mr. C's observations, he informed *the writer, that his experience was decidedly opposite to that* of Mr. Colles. From the beautiful demonstrations made by Professor Gibson, of Philadelphia, relative to Hernia, we have frequently seen the correctness of Mr. Cooper's descriptions established beyond a doubt.

In relation to the fascia lining the muscles of the pelvis, and forming the sheath of the femoral vessels, the description of Mr. C. is obscure and in no slight degree, perplexed. This is the necessary result of an attempt at conveying by description, a knowledge of such peculiarities of structure, as are exhibited in the attachment of the lining membrane of the pelvis. Students are excessively worried by the transversalis, iliac and prostrate fascia; and fretted to understand how all these can be so entangled together. Now, these fascia, concerning which there has been so much useless jargon, are but different parts of the same membrane, and are not in the slightest degree difficult to understand, when examined on the dead subject with the knife. As Mr. C. pretends to no discoveries in relation to these fascia, it is needless to make any remark on their having been known previous to his birth.

Before taking leave of Mr. Colles' excellent work, we shall take the liberty of observing that much caution is necessary in the description of parts, *to avoid coining new terms.* The licence which has of late been taken in this, is suited to produce much injury, without any compensation. The adjective "*crescentic*," the verb "*to lateralize*," and the change of "pro*state* gland," from the old term pro*strate* gland, are what we observe particularly in Mr. Colles. For the first, the word "semi-lu-

nar," as a technical, has long been well understood in anatomy, and we think "to turn the knife" to one side or the other, much more intelligible than "to lateralize." In relation to the term "prostate," which has been of late much used in this country, we beg leave to suggest, that the word should be, as formerly, prostrate. It is derived from *prosternere*, and not from *prostare*. It is *spread out* below the neck of the bladder, and does not *stand before* it. The technical term is "glandula prostrata," to prove which it is only necessary to consult those who have written in Latin on anatomy, as well as those English, French or German writers who have a knowledge of this language.

We are convinced that those who understand Mr. Colles' work best, will value it most highly, and we are sincere in wishing that the second and third parts may shortly be published.

ARTICLE III.

MEDICAL JURISPRUDENCE.

Translated from the French.

WOUNDS.

Under the term *Wounds*, the Medical Jurist comprises all the disorders which are produced by external violence: he arranges these wounds into many classes according as they appear more or less dangerous; and this classification is sufficient for his purpose, which is to note exactly all the lesions he meets with, in the order they present themselves; in short, to determine the degree of consequence of each, according to the discoveries of Physiology and Pathology. The examination of the effects produced on one or more of our organs by external violence, constitutes in legal medicine the doctrine of Wounds.*

* The word "Lethum," *death*, is the root of the word *lesion*. "Lædere" to hurt or wound, and "læthalis," *mortal* or deadly, will fix the precise meaning of the term "*lethality*" as it is here used. The term "wound," in Medical Jurisprudence is not restricted to injuries, with solution of continuity. Whatever external violence acts on the body so as to produce (*lesion*, or) any hurt, disturbance, or incipient destruction of *function*, is denominated a wound, and the decision is chiefly guided by the degree of (*lesion*, or) such disturbance or impairment of *function*. EDITOR.

There are two ways in legal medicine to consider and divide lesions; one is essentially Anatomical, and is determined by their seat, viz. the head, neck, chest, belly, &c. The other is more judicial, and relates to the consequences which these lesions have produced upon the health and the life of the individual wounded. This last division has singularly occupied the physicians and lawyers since the Caroline or code of the Emperor Charles V. has proportioned, after a fashion, the punishment to the physical effects of injuries. The penal laws in force in the French empire, which neither judge nor punish such, except on the intentional question, appear at the first glance, to exclude the utility of a distinction of this kind; nevertheless many regulations of the civil and criminal code make it necessary. Let us suppose, for example, a demand for damages on the part of a wounded person or his agent; if it be contested by the defendant, will not a vigorous examination, of the effects of the wound on the life and health of the patient be demanded? The 331st article of the penal code is thus expressed: "If the violence exercised against the functionaries and agents designed in the 228th and 230th, have been the cause of the effusion of blood, of wounds, or maladies, the punishment shall be imprisonment; if the death of the person ensues within forty days, the criminal shall be punished with death." We may see in a case like this, how important it becomes to determine whether this death is the result of the wound or only accidental and unconnected with it. Besides these positive regulations of our laws, the institution of the jury and of counsel equally demand some division of lesions according to their degree of lethality. It is the intention of the criminal, especially, that should be decided on: this intention is essentially evinced by the use of the means with which the action was committed; that is to say, from what is called in criminal jurisprudence *overt acts*. The wounding instrument—the degree of violence employed, here, throws a strong light on this point; for, may not a case present itself where the principal effect, that is to say, the death, is not found in any sufficient relation with the cause stated, and do not these cases for this very reason, demand a serious research into the individual circumstances which have caused unexpected re-

sults? An individual is struck upon the head; he falls: is it indifferent to the judge and to the counsel of the accused, whether the action was committed with an iron crow-bar or a small stick? But if the last instrument were the mortal one; if it had struck with some violence on a part of the occipital bone, that we will suppose destroyed by a caries; is it not to this fatal peculiarity that we ought to attribute the death? and could we suppose on the part of the criminal, what the lawyers call *animum occidendi?*

As soon as we have made some progress in the study of the phenomena of life, we shall clearly feel all the difficulties which a systematick division, of lesions according to their degree of thality, presents. "The immense varieties presented by nature, render every method at some point defective," says Fodèrè. Accidents may render every wound dangerous: a slight blow received on the thigh, in an unhealthy subject, is often followed by such severe effects, as to cause an amputation.—We have known slight wounds of the finger, made with a penknife, to occasion a gangrene of the hand and fore-arm: an injury of trifling consequence, done to the breast of a female predisposed to cancer, has been followed by fatal termination.—On the other hand, we have seen in the armies, cures almost miraculous, of wounds penetrating and offending the most noble organs, for the mortal result of which, there was every thing to fear." Here, as every where else, the preference ought to be given to the mode the most simple and at the same time most conformable, to that which the courts have a right to demand from the science of medicine.

Lesions are either mortal or not mortal; the former may be divided into such as are susceptible of perfect and imperfect cure; the latter are estimated before the courts according to the importance of the functions injured and the greater or less degree of difficulty which the injured person experiences in performing the actions demanded by the various necessities of life. The slightness of some lesions allows us to declare them completely curable, before the effect has confirmed this prognostick; in other cases, on the contrary, we cannot declare this, unless after a treatment of considerable duration, and of which the success may have offered a certainty of a happy result.

It is indifferent to the determination of the lethality of an injury, whether it be immediately followed by death, or mediately, that is to say, some time after, provided that we can prove it to be the effect of the violence exercised against the individual: it would nevertheless be erroneous, to regard indiscriminately every death, which speedily followed a wound, as being caused thereby. A quarrel, for example, arises between two persons, one of whom has a constitution eminently apoplectick; he receives a slight blow on the head or upon any other part, and expires at the same instant, not from the effect of the lesion, but entirely from a destructive apoplexy occasioned by passion.—In some cases, again, the death may justly be attributed to a lesion, although inflicted some weeks, and even for some months before, as we sometimes see occur in lesions of the chest, which give rise to a hæmoptysis or phthisis. Lawyers have not always sufficiently taken these things into consideration, since they have wished to determine the lethality of lesions by terms or epochs, and establish under this view, precise distinctions which observation falsifies every moment, and which no rational physician can adopt.

A Lesion may become the proximate or remote cause of death; it is upon this principle that the different degrees of lethality are founded at the present time, and that we distinguish the lesions necessarily mortal,* into lesions mortal in themselves,† and lesions accidentally mortal.‡ There is scarcely a necessity for pointing out what should be understood by the last order of these lesions; but is it thus in the lesions mortal in themselves? The lesions mortal in themselves, says the judicious Rose, are, in medico-legal language, what in ordinary language would be an intermediate expression to yes and no. In fact, this bastard order presents no distinct idea; moreover, if we consult the dogmatick treatises on this subject, we shall find that the authors mean by lesions mortal in themselves, those in which death ensues if not prevented by prompt and skilful assistance; is it not an accident, is it not the most deplorable of accidents, to be deprived of such assistance? and ought we not to regard this pretended order, which belongs to

* Læsiones absolute lethales. † Læsiones per se lethales.
‡ Læsiones per accidens lethales.

the lesions accidentally mortal, as a proof of the self-love of some physicians, who wishing always to prognosticate, have reserved it as a back door for themselves, rather than as a distinction founded upon severe logick?

Lesions, whatever may be their character, can only be judged of individually; it is not then upon single general rules, but rather by the peculiar condition of each wounded person, that we ought to estimate their consequences; this principle seems to have guided Stoll* when he divided the lesions necessarily mortal, into lesions of necessity mortal† in all persons, and lesions necessarily mortal‡ in certain individuals. The first are those where there is a destruction of one or more organs essentially requisite to the continuance of life; they are uniformly mortal, and allow of neither remedy, nor hope of recovery; the others, without being so generally destructive, become so, especially in certain persons and under certain positive conditions. The opening of the aorta, for instance, belongs to the first order; the second may be determined by a diseased state or malformation: thus blows struck with a bruising instrument and which may cause the rupture of an aneurism, an internal varix, or a vomica, or especially a wound of the right side of the chest, in a person whose heart is situated on that side,§ give rise to this second order of lesions.

But who does not perceive that this method of Stoll's is not more exempt from reproach than the general divisions of mortal wounds of which we have spoken above? All the lesions of necessity mortal, in certain individuals, are they not in fact, accidentally mortal, since they owe their lethality to a diseased state, or to a very fortuitous organick irregularity?

Hence, it follows, that the lesions *of necessity mortal*, do not admit of subdivision; indeed, they are absolutely mortal—mortal in every instance. It is not thus in lesions accidentally mortal, because the influence of these may vary in degree. We shall propose in consquence, to divide these lesions into lesions *directly mortal by accident*, and indirectly mortal by accident. To the first of these two kinds belong, besides the lesions

* Ratio medendi tom. VI. † Læsiones absolute lethales.

‡ Læsiones individualiter absolute lethales.

§ Examples of this malposition are not very uncommon.

which Stoll names, *of necessity mortal* in individuals, those which very often determine the death, but not always; to the second are referred the lesions called, in the ancient division, accidentally mortal, that is, those which in the greatest number of cases, present no appearance of danger, and which do not affect the life except by consecutive disorders. The following classification is the result of these premises:

LESIONS.

- 1st *Class.* Mortal Lesions.
  - 1st order. Lesions of necessity mortal.
  - 2d order. Lesions accidentally mortal.
    - 1st genus. Lesions directly mortal by accident.
    - 2d genus. Lesions indirectly mortal by accident.
- 2d *Class.* Lesions not mortal.
  - 1st order. Curable lesions, without derangement of function, or perfectly curable.
  - 2d order. Curable lesions, but with derangement of function, or imperfectly curable.

A slight glance at this table will, without doubt, cause a reflection that the wounds of the second *class* may be confounded with those of the second *order* of the first; this sort of imperfection is inevitable, and the objection derived from it is more specious than solid. Let us not forget that a lesion cannot be declared mortal by accident, unless death has been the consequence of it; and in this view, the lesions of the second class can never be confounded in medico-legal practice with those of the first, although many species may belong equally to one or the other of these divisions. From the impossibility of considering lesions abstractly, in legal medicine, it always happens, that those infallibly expose themselves to inaccuracy, who wish, *a priori*, to class the species. Let us then be content to establish the classes, orders, and as far as possible, the genera, and leave each medico-jurist to class the species individually, every time they present themselves in his practice. The example of a justly esteemed author, among others, confirms our opinion, for which Mahon* seems also to declare himself.—M. Fodèrè has in fact attempted to determine the species; but he has only succeeded as far as the nature of the subject permitted him, and it will not be difficult to show that a practi-

* Med. Legale, tom. 2, p. 3, etc. † Tom. 3, ch. 3d.

tioner, who wished rigorously to follow his peculiarities, would expose himself to serious errours. Some examples will serve to establish the correctness of our assertion: Mr. Fodèrè establishes two orders of mortal wounds, viz: 1st. wounds absolutely mortal, in spite of all the succours of art; 2dly. wounds ordinarily mortal, but which may cease to be so by the application of the succours of art; or wounds ordinarily mortal by accident. The first genus of the first order comprehends the wounds which intercept the actions of the nerves of the brain, necessary to the life of certain parts of the body; here is presented among other species, wounds of the head, with serious accidents, made in places where we cannot apply the trephine, as upon the bone of the orbit, or the bones of the nose; fractures of the cranium by counter-stroke, whose seat cannot be discovered; violent commotions of the brain; wounds of the head, made by fire-arms and poisoned balls;—but are there not numerous instances in the records of surgery of recovery from these different injuries? may they not moreover enter quite as well into the second order?

In spite of the impossibility of assigning, *a priori*, the species which belong to the orders we have fixed, let us nevertheless cite some with a view solely to furnish examples of the application of our principles. We will suppose for example, a complete division of the wind-pipe, with lesion of many principal arteries; a distortion of the spinal column in the vertebræ of the neck; a wounding of an artery of considerable size, and inaccessible, by its situation, to the surgeon, &c. here are some lesions of the first order of the first class of our division, that is to say, so many wounds of necessity mortal. Wounds of the head made by contusion; fractures of the cranium in places where we can apply the trephine, and when the fracture is well known; incomplete division of the rings of the wind-pipe; slight woundings of the lungs and viscera of the belly, without considerable vascular lesion; aneurisms or vomicæ from external violence, constitute so many species of the first genus of the second order of the first class; that is, so many lesions *directly mortal by accident.* Cutaneous wounds, slight contusions, bites, &c. which, from the bad habit of the person wounded, or by external unfavourable circumstances, may be

followed by consecutive and mortal accidents, form so many lesions belonging to the second genus of the second order of the first class; that is, to the lesions indirectly mortal by accident.

Nothing remains for us but to prove that this classification of mortal lesions is conformable to the demands which may be made by the (French) bar on professional men;—but this subject would carry us beyond our limits. We will only prevent a principal objection which appears to raise itself against our system; the lesions very often, but not always mortal, are found, say some, to be confounded with the lesions mortal in certain individuals, under the common denomination of lesions directly mortal, by accident; but may there not result a very great inconvenience from this method? A man, for example, whose homicidal knife pierces the belly of his victim, so as to produce a wound which without being of necessity mortal, nevertheless induces death, would be, beyond contradiction more culpable than one who has had the misfortune to kill on the spot by a blow with the fist, his adversary labouring under an aneurism; now a medico-legal report based upon the principles that have been published, would present the two criminals to the judges under the same unfavourable aspect. The medico-jurist we answer, should only consider the body of the crime; the moral circumstances of the process have nothing to do with it unless they have a direct relation with the physical condition of one of the parties concerned; this last consideration makes it absolutely necessary for him to give the motives for his conclusions, and his motives properly developed, will sufficiently enlighten the magistrates, to prevent an error on their part being attributed to Medical Jurisprudence. Is it considered as a simple civil action? As the bar before confined itself principally to the physical effects of the lesion, the inconvenience, that has been urged against our classification would be in fact nothing.

The second class of lesions, lesions not mortal, do not present the same difficulty as the first, viz. that of establishing at first the species, because they do not exclusively belong to either of the two orders of which their class is composed, and which sometimes more constant in their phenomena are also more easy to estimate.

The lesions curable without derangement of function, ar; those which in Fodèrè's classification constitute the second order of his second class; he calls them Wounds without any sort of danger, and arranges them under three species; 1st, those which only penetrate the common integuments, and which are not on the face; 2d, those which are made according to the direction of the muscular fibres, and which neither wound nerves, aponeuroses, nor tendons; and lastly, all the lesions which require nothing more for their cure, than protection from the air, and being united by a bandage.

As to the curable lesions, attended by derangement of functions, we may determine the species according to the different genera of functions injured. We shall place under each of these genera, a sufficient number of examples, which may be easily classed, the economy of room inducing us to pass their classification in silence.

1st. *Curable lesions, but attended with derangement of function.*

Of the digestion. Loss of several teeth, especially the incisive; palsy, or injury of one or more muscles of mastication; salivary fistula; weakness of the actions of the stomach and intestines; artificial anus; hernia; incontinence of urine, &c.

Of Absorption. Depraved chylification, attributable to the preceding causes, &c.

Of Circulation. Varices; Aneurisms, &c.

Of Respiration. Asthma; weakness of the pulmonary organ; &c.

Of Secretion. Glandular tumors; cysts; schirrus; &c.

Of Nutrition. Atrophy of one or more organs; &c.

Of Sensations. Loss partial or total of vision; palsy of the eyelids; deafness; loss of the external ear; loss of the nose; chronick pains, caused peculiarly by variations in the atmosphere; loss or weakening of the memory; weakening or perversion of the intellectual faculties in general, &c.

Of Motions. Injury, weakness or loss of certain motions; loss of one or more extremities, &c.

Of the Voice and of Speech. Palsy of the tongue; aphonia; dumbness, &c.

Of Conception and Generation. Prolapsion of the womb; loss of the penis; of one or both testicles; palsy of the erector muscle; loss of a breast or its unfitness for lactation.

To determine the degree of danger and the lethality of a lesion, it is necessary to consider three circumstances, which we now come to examine succinctly:

1st. *Species of Lesion according to the wounding cause.* Cuts or wounds with solution of continuity, their size, form, depth, and their direction, their complication with other lesions, are such points as never should escape the attention of the medico-jurist: the danger of such wounds, is principally determined by the number and importance of the vessels injured, and the extent of the hemorrhage that ensues. Wounds made by cutting instruments, are generally less dangerous than those made by piercing ones, because the latter, owing to their form, penetrate to a greater distance; because the narrowness of such wounds, opposes the escape of the products of suppuration; and touching the aponeurotick and nervous parts, they only tear or imperfectly cut them, and often give rise to serious disorders, which are, however, merely sympathetick. Contused wounds and especially gun-shot wounds, are the most dangerous, as they not only kill and destroy the wounded parts; cause commotions of the adjoining parts, and sometimes of the whole body; but because they often occasion consecutive hemorrhages; and on account of the foreign bodies they contain, they readily excite inflammation, and suppurations sufficiently extensive to waste the strength of the patient: moreover, they are more subject to be seized by sphacelus than the others. The danger of poisoned wounds cannot be estimated unless we know the nature of the poison that has been introduced.

Contusions are accompanied by a solution of continuity, or not: the parts injured, are, according to the violence of the contusing force, either weakened or mortified, that is deprived of life; the blood is arrested in the vessels, is collected under the skin, and thus gives rise to a contusion, but which it is necessary to avoid confounding with an extravasation independent of an external cause. The contusions become dangerous because they are frequently accompanied by commotions of

important organs—by ruptures, and followed by high inflammation, suppuration and even sphacelus.

The danger from *commotions* varies according to the importance and susceptibility of the organ affected: the more immediately mortal, are the violent commotions of the brain.—*The internal traces of these lesions, often escape the researches* of anatomists; sometimes they occasion ruptures, hemorrhages, inflammation, suppuration and sphacelus. The commotions of muscles, nerves and vessels, debilitate them and change the performance of their functions.

The danger of *Burns*, varies according to the degree of action of the free calorick, which may have either produced great irritation of the parts touched, or a destruction of their texture: it also depends on their extent, their depth and especially on the nervous susceptibility of the parts affected.

Congelation occasions a suspension of life in the parts affected, and the principal danger results from the manner in which the first assistance has been administered, attended by a too sudden transition from cold to heat, inflammation and sphacelus of the frozen parts, is easily provoked.

Luxations and Fractures offer more or less danger according to the situation of the diseased part, their simplicity, their complication, in short, according to the slightness or seriousness of the accidents by which they are accompanied.

When these lesions are not immediately followed by death, the state of inflammation is the principal point to which the professional man should direct his attention to appreciate the danger. This he may estimate by the degree and extent of the inflammation, by the importance of the inflamed organ, and the greater or less possibility of preventing or dissipating it. Sometimes it is important to determine whether gangrene can be avoided, or rather if it could be prevented; whether the suppuration is proportioned to the strength of the patient; whether it may be possible to give vent to the pus.

2d. *Species of lesion according to the parts injured.*

It would be very erroneous to judge of the lethality of a lesion on the single consideration of the place it occupies; because there is not, perhaps, a single portion of the body of which a wound could be regarded as absolutely mortal, if we

do not at the same time examine in what manner it was given, and what other circumstances might have influenced it. We transgress equally against good sense and the rules of art, if regardless of the situation of the lesion, we confine ourselves to the manner in which it was caused, as well as the different circumstances by which it is accompanied. Medico-jurists have fallen into these two extremes; for if many moderns have neglected to appreciate sufficiently the situation of lesions, their predecessors have attached to it a too exclusive importance: it is always true, that to determine the degree of lethality of a lesion, it is necessary to consider together, both of these conditions.

Lesions of the head, offer great difficulties. The most violent commotions of the brain often leave no marks after death, by which to trace them. The solidity of the bony covering; the slight degree of sensibility, with which the external surface of the encephalon is endued; the frequently slow appearance of the consecutive symptoms; the slight connection that is sometimes remarked between the external and internal lesion, which may be more severe than the other seems to point out; the resemblance that exists between accidents that cause a simple external lesion, and those caused by an internal lesion; are the principal obstacles which here oppose themselves both to the prognostick and the diagnostick of the medico-jurist.

The lesions of the head are external and internal, although the first (by the relations existing between the internal and external parts) are not always exempt from danger, they are generally less to be feared than the last.

The danger of *external lesion of the head by a piercing instrument*, depends on the depth of the puncture. When it is confined to the integuments, an inflammatory tumor arises, pale, slightly painful, and which sometimes extends itself over the whole head, with a slight fever, and frequent nausea; the danger is then inconsiderable. Has the puncture extended to the aponeurotick expansion and periosteum? the tumor is more tense, redder, more painful, and extends no further than to the ears and eyelids; the fever and other symptoms are more intense. The danger here depends on inflammation and suppuration of the periosteum, which often reaches to the bones; and

above all from the consecutive inflammation of the dura mater. The punctures which are most dangerons, and always mortal, are those which traversing a small or empty space of the bony covering, penetrate the brain; consequently it is then almost impossible to examine them, or to treat the wounds properly.

The *lesions of the head by a cutting instrument*, demand examination, whether they are entirely external, and if so, whether they are to be considered as simple cuts of the integuments; or have touched at the same time considerable vessels, the lesion of which requires prompt assistance; or whether they occasion cerebral commotions or penetrate the brain either on its surface or to a greater extent. Wounds and contusions of the temporal muscles demand a particular attention to the cause of the inflammatory tightness that results, as well as the inability to move the under jaw; and lastly to the degree of possibility of a lesion of the temporal artery.

Three circumstances demand the attention of the medico-jurist when he is engaged with contusions, or bruises of the integuments of the head; these are, the degree of violence which has produced them, their extent and depth, and the direction in which the wounding body has struck the head. These lesions in the first place, cause the tumors or bumps formed by blood extravasated under the skin, or under the aponeurotick covering, and pericranium. The first kind project more above the surface, the second are more flat, more tense and larger; they often provoke fever, and even suppuration. The principal danger arises from internal lesions, which may co-exist with external lesions of the skull, however slight in degree.

The lesions of the bones of the skull are not dangerous in themselves. An internal hemorrhage from the diploë, caries, the formation of an irregular callus on the inner surface, are not more to be feared here, than in all other fractures, whenever the surgical treatment has been properly attended to.—But the great violence that is implied by such lesions ought always to awaken a fear that some simultaneous or consecutive disorder may arise within the skull. When there is a displacement towards the inside of any portion of bone, inflam-

mation of the membranes, and the effects of cerebral compression readily occur.

Separation of the sutures, produced by extreme violence, may happen primitively or consecutively: the first case is extremely dangerous, because it authorizes us to suppose proportionate disturbance within the skull. In the second case the danger is equally determined, by the signs which indicate the presence of these disorders.

Cerebral commotions occupy a first rank among the internal lesions of the head; though equally frequent and fearful, they are not always produced by violence exercised on this part, but may also be caused by a shock or jarring of the whole body. A very intense commotion of the brain, suddenly induces death, and it is precisely in this case that we cannot obtain a single ray of light from inspection of the dead body. We are then only able to suppose, positively, the existence of the commotion by the probabilities the accessory lesions offer, and especially by the remarkable circumstances that constitute the act of lesion. A slighter commotion causes the abolition of the senses, and a comatose state with symptoms of irritation. A still slighter degree of commotion causes a numbness, a debility or insensibility of one or more parts. A strong commotion, but which is not instantaneously mortal, occasions sometimes a paralysis and distension of the cerebral vessels, whence arise apoplectick symptoms; in other cases it may bring on a rupture of these vessels and extravasation of blood. Violent and free cerebral commotions are known, during the life of the patient, by the sudden appearance of the symptoms directly after the lesion; and these are composed of symptoms of palsy and irritation; by the variations which are offered during the course of the affection; and finally by the manner in which the respiration is concerned in these disorders.

Extravasations of blood or serum in the brain, and which arise either from an immediate lesion of the vessels, or by a separation of the dura-mater, or a violent commotion, manifest themselves by the symptoms of cerebral compression. These gradually arise, and continue increasing until their disappearance, or until death. The functions of the brain are not much disturbed when the extravasation is slight; if it be large, we find

an apoplectick state to supervene, which, when the issue is fatal, continues until death. The degree of danger and lethality is determined by the degree of the extravasation which we always recognize on opening the body after death, by the seat it occupies, by the situation and manner of the external lesion, and by the treatment employed on the patient.

However inconsiderable the lesions of the head may be, they are often followed by inflammation and suppuration of the brain and its membranes. The first is characterized by a local pain which extends itself further and further; by an accelerated jerking pulse; by a state of sighing and anxiety; great sensibility of the eye to the impression of light; sometimes by delirium and convulsions. The inflammation and suppuration may declare themselves shortly after the lesion, or may not arise until the seventh or seventeenth day. Suppuration is generally more dangerous than the inflammation, because it extends with greater facility; the danger is increased because of the difficulty of drawing off the pus, as well as on account of the surface it occupies, and which is in this case, so much the more considerable, as the inflammation is longer in declaring itself. The farther wounds of the brain penetrate, the more are they dangerous: moreover, when they are accompanied by loss of substance, which does not elsewhere coexist with important accessary lesions; they are not to be considered in themselves as of necessity mortal, because the diagnostick is clear, as the cut has an external opening and the cerebral surface is in general but slightly sensible.

The other consequences of Lesions of the head, such for example as vertigo, cephalalgia, palsy, epilepsy, the weakening or loss of intellectual faculties are sometimes beyond the assistance of art, and should then be considered as so many incurable derangements of functions.

Lesions of other parts of the nervous system.

Lesions of the spinal marrow are dangerous in proportion as they are near the brain. Here fractures and luxations of the neck present themselves; wounds which penetrate across or between the vertebræ of the neck to the spinal marrow; blows on the back of the neck with commotion, &c. These lesions

affect the inferior extremities in proportion to the distance they are situated from the superior.

Lesions of the great nervous trunks that supply the viscera necessary to the maintenance of life, as for instance, the lesion of the eighth pair; of the intercostal nerves; or of the phrenick, involves the most imminent danger. Their complete division is mortal. Lesions of other important nerves occasion dangerous and even mortal accidents, especially when imperfectly divided, or have been only torn, pricked, &c. It is necessary to be particularly attentive to the surgical treatment when we wish to form a solid judgment on events of this kind, and to decide whether the situation of the nerve allows us to perceive the disorders, and offer the assistance that surgery directs. Lesions of parts endowed with a great number of nerves, and which directly sympathize with other essential organs, often become mortal by the low irritation they excite. Of such nature, are violent contusions of the testicles, severe blows on the epigastrium, &c.

Lesions of the organs of sense situated upon the head, are rarely mortal; but they frequently cannot be cured without derangement of function; such especially are lesions of the eyes.—When we speak of wounds of the face, it must not be forgotten that those which are situated on the superciliary ridge, demand a peculiar attention, although apparently trifling, because they sometimes occasion blindness, which can only be attributed to a pressure made by the cicatrix on the frontal branch of the fifth pair of nerves.

The danger and lethality of *lesions of the neck*, is principally determined by the number and importance of the parts injured. Lesions of the principal arterial trunks, and of the internal jugulars, are of necessity mortal if we do not proceed immediately to tie them up. The external carotids are more easily secured thus than the internal,* which could scarcely be secured without inducing evil consequences. Wounds of the coats of the carotid arteries, very often give rise to aneurisms. Wounds of the vertebral arteries are of necessity mor-

* In case the internal carotid is wounded the mortal termination may be prevented by securing the trunk of the Common Carotid. See Abernethy's Surgical Observations. EDITOR.

tal,† because we cannot remedy the evil, and they are always coexistent with a lesion of the spinal marrow. Lesions of the external jugular, are only accidentally mortal, as compression alone would suffice to arrest the hæmorrhage.

We might apply to lesions of the principal nervous trunks of the neck, that is, to the great sympathetick, and nerves of the eighth pair, what we have before said on the subject of lesions of the great nervous trunks in general. Lesion of the nerves of the voice induce sometimes danger, or at least, and when not complicated with other disorders, an aphonia which sometimes spontaneously disappears.

Lesions of the wind-pipe, considered in themselves, are not very dangerous, at least when this canal has not been entirely divided; even in this case, there are examples, although rare, of cures effected. Wounds of the wind-pipe from gun-shot are peculiarly dangerous, on account of the disorders they cause in the adjoining parts. They are more dangerous, when their direction is from before, backwards, than when it is lateral.—Contusions of the neck, when they are not immediately followed by suffocation are apt to cause dangerous sore-throats.

The danger from lesions of the œsophagus depends on the place in which it is injured; they are the more dangerous the lower down they are, the more completely the canal is divided, and in proportion to the degree of injury done to the neighboring parts.

Lesions of the chest. Wounds not penetrating the external soft parts of the thorax belong to simple cuts, and cannot become mortal, unless important vessels, such especially as the subclavians, the intercostal, or even the external mammary artery, have been divided. The nearer the lesions of the intercostal arteries are to the vertebral column, the more easily they may become mortal. Contusions and other lesions of the bosom in women, are apt to produce inflammation, suppuration, induration, and cancer.

Lesions of the bones of the thorax, whether from fracture or luxation, may become dangerous in two ways; first, a fracture or luxation of several ribs, and of the sternum, are liable to arrest the respiration suddenly; or, in the second place, there

† They need not be so under all circumstances; compression by means of a sponge would be sufficient to stop the hæmorrhage. EDITOR.

are cases where, without death immediately succeeding to the external violence, the luxated or fractured ribs may irritate or wound the pleura or the lungs sufficiently to excite inflammation and to give rise to a hæmoptysis or to a pulmonary consumption.

Penetrating wounds of the chest offer in relation to the lungs, a triple danger; that of inflammation, of suppuration and of hæmorrhage; of gangrene and sphacelus, and lastly from the entrance of the external air, by the wound in the chest. When the wound of the lungs, is superficial, the hæmorrhage does not occasion a great danger: the danger increases if the wound is deeper, and especially if it affects the pulmonary arteries; death is then induced not only by the loss of blood, but also by the compression caused by the extravasated blood on the lungs. The danger of suppuration is greater when the wound is very deep and the patient consumptive. The danger of sphacelus is greatest when the lungs have suffered violent contusions. The danger from penetration of the external air through the wound, is not in reality so great as has been supposed; the wound of the thorax when it is not very considerable, closes itself by the contraction of the chest during expiration, and as on inspiring, the air which has penetrated into the thoracic cavity is pushed outwards by the expansion of the lungs, the lungs sometimes contract adhesions easily, to the part of the pleura answering to the external wound.

Contusions and shocks of the Chest. are not very dangerous when confined to the soft extreme parts; they become more so when they extend to the periosteum of the ribs and of the sternum, on account of the caries of the bones which often succeeds. They are serious when the lungs have suffered from them. The most intense degree of these lesions may cause a rupture of the pulmonary organ, and even of the heart as well as the great vessels. A lesser degree of injury still causes danger from inflammation, suppuration and sphacelus of the lungs, and by the sanguineous or serous collection that may follow.

Lesions of the Pericardium, when not co-existent with those of important neighbouring parts, are not as dangerous in themselves as has been heretofore supposed. Their principal danger results from inflammation, on one hand, which we ought to

check as much as possible, because of the facility with which it spreads to the neighbouring parts; and on the other, from the collections which are frequently formed in this membranous sac in consequence of the lesions it has suffered.

Lesions of the heart, present some very rare cases, where the wound without dividing the coronary vessels, and without piercing into any of the cavities of this muscular organ, is confined to its fleshy substance: although there is not an absolute lethality in such case, the danger is nevertheless very great. Lesions of the coronary vessels induce death; but it is not always immediate, when the largest of these vessels are not wounded. Wounds penetrating to the cavities of the heart are of necessity mortal, although not always immediately so. The same may be said of the nerves which are distributed about the heart.

Lesions of the thoracick duct, inasmuch as they allow of no remedy, prevent nutrition, and cause collections in the chest, are of necessity mortal.

Lesions of the Œsophagus in its thoracick portion are extremely dangerous; they are of necessity mortal when this canal is entirely cut across.

Lesions of the diaphragm, are very dangerous on account of the impediment they cause to respiration; by the inflammation they threaten, as well as from the escape of some of the abdominal viscera into the chest through the wound. It is useless to distinguish between wounds of its tendinous and muscular portions. Lesions of the phrenick nerves are of necessity mortal.

Lesions of the belly. These lesions may be either external or internal, and affect the organs contained in the abdominal cavity or not: which latter case is very rare, however small the lesion may have been, for though the wound does not penetrate, the internal parts are usually contused and disturbed.

Lesions of the abdominal integuments, are nothing but simple cuts, inasmuch as they have only divided them without reaching any of the internal parts. Wounds from fire arms or piercing instruments imply greater danger, because they penetrate more readily, at least when their direction is not oblique and superficial, and has not been too much disturbed. Four circumstances

may render lesions of these integuments dangerous: the chance of hæmorrhage from the epigastrick artery, which for want of securing may become mortal; the danger of hernia and its consequences; the peculiar dangers attached to wounds of the linea alba, disposed by its structure to inflammatory tension, and in case of suppuration, to fistulous discharges and hidden collections of pus; lastly, from danger of injuring the genital organs of which we shall hereafter treat.

Lesions of the contents of the belly, are mortal in proportion as they disturb the digestive functions; as they occasion hemorrhage or collections of any kind, whose sources are not discoverable; and as they affect strongly those parts which receiving a large number of nerves, are in the closest sympathy with the whole of the nervous system.

Lesions of the epiploon and mesentery, are but slightly dangerous in themselves, and only become so by reason of their large vessels, when hemorrhage has not been arrested by timely aid, or where it cannot be applied; they become dangerous when the wounded parts are lodged in the wound, inflame and are seized by gangrene; in short, when they are complicated with accessory lesions.

Lesions of the stomach are doubly to be feared: the number of its nerves and vessels render wounds of this organ promptly mortal, either by hæmorrhage, or inflammation or shock to the nervous system. Again, the functions which are proper to it, are too important for the system to bear a serious disturbance or suspension of them for a long time. Nevertheless, all the lesions of the stomach may not be mortal: the greater the size of the wound in the stomach; the more important vessels are wounded; the nearer the lesion is to either of the gastrick orifices; the fuller and more distended the stomach was at the time of the accident; and, in short, the greater the degree of commotion, the more reason there is to fear that the lesion may be mortal. Death may result either from the violent commotion which, like lightning, paralyzes in an instant the whole nervous system; or from hæmorrhage with extravasation of blood in this organ or in the belly; or from inflammation; or from gangrene; or from an effusion into the abdominal cavity of the liquids contained in this viscus. The fewer of these circumstances

that are met with, the greater is the hope of reunion of the wound, by an adherence with the peritoneum or epiploon, especially when all of the tunicks have not been completely divided. It is particularly in the wounds of the stomach that the judgment of the medico-jurist can only be established on *individual circumstances.*

Lesions of the intestines, when not very extensive, are often less dangerous, as they may contract adhesions to the external wound. They are not always mortal even when the bowel has been cut in two, with loss of substance, and can be sometimes cured without leaving an artificial anus, of which the inconveniences and danger are greater in proportion as they are nearer *to the origin of the tube. Wounds of the intestines complicated* with contusions, and by consequence those from shot wounds are the most dangerous. The polished surface of the intestines often preserve them from being injured by piercing bodies, which slip over them without cutting. When an external wound traverses the integuments, the intestines may readily become strangulated between the edges of the wound, and the *inflammation ensuing in the protruded portion, must be dangerous.*

Lesions of the kidney and of the liver, become dangerous from inflammation and suppuration which are serious in proportion to their depth, as it is difficult to evacuate the pus. There is a danger from wounds of the large vessels of these viscera and the mortal hæmorrhage that may follow. Sometimes external *violence may cause ruptures of these organs without the least* external evidence of such disorder.—Death is more or less prompt, but always certain in these cases when the great vessels are concerned in the rupture. Moreover, such accidents, especially without much external violence, denotes a morbid disposition or defective consistence in these organs.

Lesions of the gall bladder and ducts, are usually accompanied *by other serious lesions; they may become dangerous, alone,* by effusion of bile into the abdominal canal, and from defect of this fluid in the intestinal canal. Under this last view, lesions of the hepatick duct and choledochus are much more dangerous than the lesions of the cystick duct or of the gall bladder, because in the last case we may prevent the flow of bile sometimes into the abdomen.

Lesions of the pancreas, are dangerous from the sanguineous extravasation into the cavity of the belly which ensues, and from the loss of the pancreatick juice.

Lesions of the receptacle of chyle, or reservoir of Pecquet, as well as the vessel or vessels which arise from it to form the thoracick duct, are as dangerous and mortal here as within the chest.

Among the lesions of organs destined to the secretion of urine, those of the kindeys are so much the less dangerous, as they are superficial and may discharge or be opened externally. They are of necessity mortal when the great vessels participate in the lesion.

Lesions of the ureters, when they are penetrating, occasion an irremediable effusion of urine into the abdominal cavity, followed by inflammation and sphacelus, and become thus of necessity mortal.

Some have hitherto regarded lesions of the urinary bladder as of necessity mortal. Of late, this absolute lethality has been confined to wounds of the fundus of this organ, as those of the neck of the bladder belonged to wounds accidentally mortal. It is scarcely necessary to say that this principle is entirely as erroneous as that which establishes a distinction between the wounds of the fibrous and membranous parts of the bladder, and regards the first as less dangerous than the other, since they must co-exist when a pentrating wound is received. The essential point here, is to determine whether any important artery of the bladder has been cut; whether the situation of the wound allows the urine or effused blood to be evacuated or not from the pelvick cavity or the surroundi g muscles, and whether the bladder has been violently contused, which action causes generally the inflammation of it to be followed by sphacelus. Cases in which the full bladder has been ruptured by external violence, are of necessity mortal: the danger from lesions of the bladder, is increased by complication with accessary lesions.

In relation to *lesions of the male orguns of generation*, the wounds of the *spermatick* vessels contained in the abdomen, cause an hæmorrhage which cannot be arrested; they are, moreover, complicated in this case with other considerable

lesions. Wounds of the external spermatick vessels may become mortal by accident. Deep cuts in the external organs of generation, or their complete division, are not of necessity mortal: the only danger is from hæmorrhage, which may, nevertheless, be checked when the vessels are not divided too close to the belly. Lesions of the *testicles*, without being of necessity mortal, may cause danger by the nervous symptoms and the inflammation which sometimes follows. Lesions of the seminal vesicles cannot of themselves injure the life, but when they result in the obliteration of the excretory canals they render the individual incapable of procreation.

Among the lesions of the female organs of generation, those of the uterus, are not, it is true, exempt from danger, because of the numerous nerves and vessels belonging to this organ; but they are not of necessity mortal, since the complete division of the wound has been made without the patient dying. Lesions of the uterus are very often mortal, not only to the fœtus but also to the mother, to whom this accident causes, under such circumstances, a fatal hæmorrhage, from the excessively gorged vessels, unless the child is expelled shortly after and allows the womb to contract. Different lesions of the womb cause retroversion, rupture, and especially give rise to abortion. Improper examinations during labor, obliging the woman to make premature efforts, and the violent or precipitate extraction of the placenta, lesions of the internal walls of the womb by the hands or instruments of the accoucheur, &c. may cause not only retroversions and prolapsions, but frequently also mortal inflammation of this organ.

Fractures of the bones of the pelvis, become dangerous by the collection of blood, or other liquids, which they occasion in this part, and by the commotions of the spinal marrow that may be complicated with them.

Lesions of the extremities, are usually regarded as not mortal, because they do not belong to the organs directly necessary to life. It is thought that the great diversity of wounds that may present themselves as well as the parts that may have been injured, ought to destroy both the principle and the vague and too general assertion that flows from it.

The loss of a member, or of part of a member, is not mortal in itself under favorable conditions; they belong to the curable

lesions, but with derangement of functions. To determine the consequences of such derangement, it is necessary to attend to the mode of life and the profession of the mutilated person.

Lesions of the great vessels of the extremities, are dangerous in proportion as they are near to the centre of circulation. Wounds of the axillary artery near the joint, cause a hæmorrhage which it is difficult to suppress with sufficient promptness. On the most favorable supposition the arm should be regarded as lost.* Wounds of the crural artery and vein immediately at their exit from the belly, induce equally a hæmorrhage speedily mortal, and which cannot be arrested, unless by the extirpation of the thigh at the hip joint, or by the ligature of the artery, or external iliac veins, operations which many surgeons regard still as impracticable.

True and false aneurisms, as consequences of bleeding at the arm, contusions, &c. are not in the present state of surgery to be ranked among mortal lesions, except in a case where their situation or some other cause, renders the operation impracticable.

Considerable lesions and especially contusions of the articular cavities, of the tendons and nerves of the extremities, are dangerous because the nervous symptoms and appearance of mortification so readily arise during the treatment.

The danger from luxations and fractures of the extremities, with or without wounds or contusions, is in general less, in proportion to their simplicity.

3dly. *The organick condition of the wounded person, and the external circumstances.*—These two points demand a very close attention, because of their powerful influence on an accused person.

* By no means. The artery may be taken up with no great difficulty below the clavicle, as originally proposed by Professor Davidge of Maryland. To do this an incision is made between the fibres of the pectoral and deltoid muscles where they arise from the clavicle, extending two or three inches toward the insertion of the pectoral. The cellular substance and head of the little pectoral muscle being moved aside, the artery may be readily secured, by passing a curved needle, and double ligature, held by the forceps of Dr. Physick, under the artery. It is only necessary to be careful not to include the vein or nerves in the ligature. If the artery be secured below the origin of the subscapularis and acromialis, there will be an immediate supply of blood to the arm; if it is tied closer to the clavicle, the arm will be supplied by the transversalis colli and branches coming off along with the inferior thyroid artery, with blood sufficient for its preservation. It is of the utmost importance to avoid tying the vein. EDITOR.

The age of a wounded man is by no means a light consideration, in deciding on a lesion. The susceptibility being much greater in youth is the cause why the same impression will produce much more vivid effects on a young than an old subject. The greater abundance of fluids, and especially of blood, the more active circulation in one than the other, exposes the youth to much more alarming hæmorrhages than the other, but which he will also support much better. The great organick softness and flexibility of the young, the much greater dryness and rigidity of the old, render the first subject to luxations, and the other to fractures. The greater vital activity, generally, of youth, is the reason why that during that period, many lesions that would be mortal or incompletely curable in old age, are considered in youth as completely so. Of this number for instance are the lesions of the skull and fractures.

Sex. This circumstance deserves to be taken into consideration, not only on account of the absolute difference of sex, but also of the relative sexual difference, as in susceptibility, softness, and greater abundance of fluids in females than males. Every lesion arising during pregnancy is more dangerous than it would be at any other time, not only on account of the injurious influence it may exert on gestation, but because this state generally retards the cure of wounds.

The temperament—Inasmuch as it causes a difference of susceptibility, demands serious consideration.

Habit and idiosyncracy, may also become the cause why lesions affect certain persons more or less vividly than others.—We have seen in a country, at a period when the slightest military crimes were punished with the bastinade, soldiers contract, as it were, such a habit of bearing lashes, as not to be at all incommoded by a number of blows which were much more than sufficient to put any other entirely past service for several weeks. An idiosyncracy may prevent the employment and success of a medicine, though it is otherwise imperiously demanded, &c.

Diseased dispositions, or diseases themselves, contribute often in a powerful manner to the fatal or favorable event of a lesion. It is thus for example that wounds of the head are peculiarly fatal in persons disposed to apoplexy; lesions of the chest in

those disposed to consumption. Every lesion is more serious in an individual affected by fever, syphilis, scrophula, gout, &c.

It is useless to insist upon the part which organick diseases exercise on a lesion; we refer to what we have said above, in speaking in general of lesions directly mortal by accident.

The condition of the wounded person, at the moment a lesion is caused, should not be neglected. It may become very important for instance, to determine whether he was fasting or had eaten and drank; if he was drunk or in anger, sleeping or waking, standing or sitting, &c.

In short, all the external circumstances, the climate, season, state of the atmosphere, epidemick constitution, the residence or dwelling of the patient during the treatment; his mode of life, diet, and in general the circumstances connected with his health, are so many points that the medico-jurist ought to weigh scrupulously the influence of, before he delivers his opinion.

We should have some regret that we have not added a convenient number of examples to these observations, if we did not suppose our readers sufficiently informed and able to judge to make it easy for them to find the applications belonging to these general principles; to charge ourselves with this labour would be to extend this article to a useless length, incompatible with the nature of the work. M. MARC.

ARTICLE IV.

DE CONCEPTU
ADNOTATIONES QUÆDAM.

DISSERTATIONEM, "de Conceptu, auctore E. Atlee"* tam sententia pro sua singulari, quam pro Latinæ linguæ usu legere gavisi fuimus.

Omnibus argumentis caute scrutantibus, ope quibus sententiam stabilire nititur, non nobis tam clare patet se cognitionem veram attigisse. Almæ Veneris munere, sobolis procreandi gratia, fruendo, secundum *Atleei* sententiam, membrum virile sicce in modo est utero adpositum, quod pars ejus extrema "glans" dicta uteri labiis contigat; unde semen masculinum vi exsiliente ad ovaria per tubas *Fallopianas* fertur. Si, solum,

[* In the Medical Recorder, November 1821.

rebus diurnis et communibus conspicerimus haud difficile viro huic docto credere erit. Sed cognita omnia, vel præternaturalia vel communia de re physiologica judicando, nobis, [illegible] ratione, et observanda et utenda sunt.

Qua ex causa, ac sine opinionum de veritate discrimine, ad rem veniamus; id est rogare quomodo medicus noster solers, hæc explicare poterit.

Ex actis Soc's. Regal's. Lond's. Tomo. XXIII, No. CCCLXXIX. Anno MDCCXXIII.

Mulier quædam, ætatis anno XXIII nupta et postea gravida facta est; mater sua partus periculum timens, et mulier seipsa formæ inusitatæ formidine suæ correptus, auxilium meum septimo graviditatis mense, in promptu habere petierunt.

Abdomini inspiciens, nota sequentia feci. Deest umbilicus, sed tres pollices a loco, quo feminæ bene constitutæ umbilicus insedit, tumor erat carnosus spongiosusque magnitudinis ovi, granulationibus fungosis persimilis quæ ad mali moris vulnera attinent. Huic tumori tantum acuti est sensus ut mulier levissimi tactus omnino impatiens erat. In parte tumoris inferiore ostiola dua vidi, inter se pollex unus distans, urina per hæc guttatim stillat nec retineri potest, tametsi conando a corpore violenter rejecta fuit.

Foramen circiter ad quartam pollicis partem sub tumorem est transversum, valde galli ano simile. Per hoc, *catamenia* regulariter sunt effusa, et per hoc foramen gravidata fuit. Difficile erat *digitum* eo mergere oris tincæ gratia tangendi, quod tamen non sentire possim propter situm ejus profundum; et cæt. [Scalpello ope; mulier filium sanum hæc peperit.]

De eadem muliere Huxhamius clarissimus sic loquitur. "Per hoc foramen etiam gravida facta fuit mulier, haud magnam vero tempore coitus percepit voluptatem, summa enim penis glans in hoc *orificium* vix fuit intromissa, multo minus ipsa virgo." (*Huxh: lib. citato.*)

Casus huic verisimile, nobis Plenckio, verbis sequentibus prolatus est. "Fui ego advocatus ad mulierem parturientem, cui vaginæ adeo erat angusta ut nec ego, nec obstetrix digiti minimi apicem potuerimus vaginæ immittere; maritus *a triennio*, quo ipsi matrimonio erat junctus nunquam *more solito* coitum exercere cum illa potuit" [*Elem. artis Obstet.*

Gaudium nobis non mediocre casum huic similem proferre confert, quem Medicus *Drake* nostras, mihi amicissimus, seduliter notavit.

Fœmina generosa stirpe nata per annos aliquos nupta fuit antequam gravidata erat. Maritus vir instructus et bonæ indolis ante partus tempus mihi sese pericula propter malam uxoris formam timere dixit. Porro, vagina nunquam penis actu coitus introiri potest et propter dolores et jactitationes ejus, eo tempore, se rem facere conando negasse. "Glans" penis *tantum* vaginæ intratum erat. Partus illæ naturalis suppetit. Digito introducto, vagina contracta et sensu morbido prædita inventa est, hinc illa omnino tangendi impatiens, et sicut a titillatione laterum resiliens. Pulsus validus et febrilis erat et missi sanguinem jussi. Partus felix secuta est. Idoneo tempore iterum gravidata fuit, iterumque maritus nobis solemniter se *nunquam* vaginæ penem introduxisse declaravit. Extrema pars solum inter pudendi labra mittere potest. Tamen bis, felici exitu peperit.

In libris Ruyschii Morgagni, et cæt. casus similes inveniantur et multa similia in Museo Medico Philadelphiensi, ornatus *Dæcesius* prætulit.

Quoniam hæc non neganda sunt, *Atlees* sententia inter cogitationes ingeniosas tantum æstimari debet. Hoc sine dubio sequitur, si mulieres quibus vaginæ occlusæ, (medicis gravis auctoritatis testantibus) et gravidarentur et parturiant.

ARTICLE V.

OBSERVATIONS ON THE NEW ITALIAN DOCTRINE OF COUNTERSTIMULUS.

Any young physician who wishes to come into practice very speedily, should always set out with a new Theory. If he could attempt to prove that the blood does NOT circulate, he most certainly is a made man. He should make too, some wonderful discovery in some little article of diet; for instance, he should attack the wholesomeness of salt, of bread, or of the inside of a sirloin of beef in preference to the outside. CARBONARIUS.

TO HUMAN knowledge certain limits are fixed, beyond which neither genius nor industry can win their way. In no case is this more true than in the science of Medicine, the object of which, being to preserve the health of mankind, has, since the first existence of our race commanded the exertion of every variety of talent and industry for its improvement and

perfection without arriving any nigher to some truths, or being better able to surmount some difficulties co-eval with the study.

In the first place we know but little of the very commonest effects which are daily occurring in our frames. We know almost nothing concerning a vast number of actions necessary to our lives; and are still in entire ignorance, even of the uses of many organs of the body. Although the great object of our profession is to preserve life, yet are we barely able to say when it has ceased to be; ignorant alike of its essence and its causes, we still speak and act as if this mystery was clearly exposed to us, and this evanescent flame reduced to obey by the potency of our art, every direction that necessity or convenience may require.

Tired of following the precepts of that philosophy, which insisted on all conclusions being drawn from established premises, and all opinions scrutinized with severity before they were offered to the world, many persons of ardent feelings have undertaken to explain all the dark parts of our science. They have seized on a few facts apparently in favour of their notions, and insisted on the truth of these notions to others, until they almost persuade themselves to believe. New modes of practice, new modes of reasoning, new medicines, have arisen in crowds from these theorists, and have been confidently placed in array against the approaches of the invader. To read their writings you would expect to learn that disease would in no great time be banished from the earth, and the ravages of the grisly King of terrors be altogether suspended. But the sad reality is pressed upon our notice. Disease still preys on the vitals of mankind—the new explanations and new doctrines are swept to oblivion—while the pale horse of the Conqueror hourly tramples over the dying and the dead!

The most noted and really the greatest of these reformers of Medicine, was Brown. He was a man of ardent mind, and lively imagination; an apt and learned scholar, and a keen and subtle logician. From his earliest youth plunged in misfortune, his disposition was rendered impatient by distress, and soured by the idea that he was treated with neglect or persecution. Hence arises a part of the success his writings originally met with. Add to this the force and facility with which he composed his latin Elements of Medicine, the novelty and simplicity

of his opinions, the warmth and earnestness with which he proclaimed his triumphs over the difficulties of his art, and the youth of those who were the first proselytes to his doctrine, and you have almost all the causes out which his success grew. Such was the effect of his enthusiasm on those who entered into his views, that they vainly imagined the science to have attained its zenith of perfection, and looked forward to the time when Brown's Elements would constitute the only library necessary to the practitioner of medicine. The fire spread over the continent of Europe. Even German doctissimi, hurled aside the ponderous tomes of Hippocrates and other observers of nature, to seize on the more airy and imposing volumes of Brown. Yet after a time had elapsed sufficient to allow the fervor to abate—it was discovered that these volumes were filled with the dogmatick assertions of a youth, whose imagination predominated far above his reason. That novelty and enthusiasm were his chief supporters; that his principles were not less subversive of all the sober rules of philosophy, than his practice was destructive to human life. Of this theory scarce a vestige remains except what is discernable in the terms used among physicians. The good done by Brown was that of stirring up men to investigation, and introducing more of energy into the practice of medicine. Yet after all, the practice of medicine is pursued on the principles in use for ages, whatever effect was produced in the energy of its administration. The volumes of the revered and enlightened Cullen are still resorted to as treasuries whence knowledge of practical utility may be drawn; while the works of his rash antagonist and reviler are viewed as objects of curiosity, or as warnings against folly.

A new bubble is now ascending, elevated by the breath of the Italian schools. A lineal descedant of the theory of Brown, more extravagant and presuming in its aspect—but by no means supported with equal elegance or skill. Like the theory of Brown it has been offered to the world through the medium of the Roman tongue—yet it does not, like his, soar with the strength of the Roman Eagle.*

This new doctrine is comprised in a few propositions, which are—

1. "That many substances act on the living fibre in a manner

* The lodge of Masons instituted by Brown, was called "the Roman Eagle."

directly opposed to that of stimulation; and that those effects which Brown attributed to a negation of stimuli are to be ascribed to the positive action of contra stimulants.

2. That contra stimulants have the power of subduing, even without any evacuation whatever, the effects of an excessive excitement; and that when too liberally applied the diseases are produced which the administration of stimuli alone can relieve.

3. That we have in the class of contra-stimulants, a set of remedies adapted to the cure of every morbid condition resulting from excessive stimulation; and which may be used like bloodletting or purgatives.

4. That the capability of the fibre to support large doses of contra-stimulants is in proportion to the increased diathesis present, whether occasioned by sthenic or asthenic powers.

5. The discovery that this capability of supporting contra-stimulants, affords a juster measure of the intensity of the diathesis than any that can be collected from the symptoms themselves." There are however three other points belonging to the doctrine not comprehended in the above, which Tommasini is at great pains to elucidate in several parts of his lecture.

1. "That inflammation is invariably of a sthenick nature and always consists in excessive excitement.

2. That a degree of contra-stimulation, more or less durable, is inherent and essentially connected with pain.

3. The distinction between diseases of excessive or defective stimulation and those arising from mere disturbance of particular parts or from irritation."

"Of the two following tables, the first, containing the doses of some contra-stimulant medicines, as they are usually prescribed by the followers of the Rasorian doctrine, was given us [London Medical Repository] by a physician who has attended the practice of Borda in the hospital of Pavia. The doses were set down by Dr. Carlo Bellati, one of the physicians to the hospital, a gentleman of great learning and high character, and who from his well regulated habits of philosophizing is little inclined to form extravagant opinions on any subject.—From his pathological observations, and the dissections of the

ingenious and accurate Pannizza, much light is expected to be thrown on the pellagra, a peculiar and formidable disease, endemick among the country people in many provinces of Italy. It is understood to be connected with inflammation of the membranes investing the spinal marrow; and the dissection of Pannizza are master pieces of art. The following prescription, and it is needless to multiply them, was ordered by Borda for a patient affected with peripneumony. R. Calom. iij. Ext. Hyosciami grs. v. Kermes Mineralis grs. iv. This formed one dose, and eight were taken daily for nine days. The patient recovered.

Tartar Emetic, from half a dram to three drams daily.

Extract of Aconite, from two grains to three ounces daily.

Powder of Digitalis, from two grains to ninety-six grains daily.

Gamboge, from six grains to thirty every three hours.

Cream of Tartar, three ounces a day for a month.

Muriate of Lime, from a dram to half an ounce daily.

Extract of Hyosciamus, from two grains to twenty-four every two hours.

Carbonate of Soda, a dram to an ounce daily.

Carbonate of Ammonia, half an ounce daily.

Ammonia, a dram to two drams daily.

Soda, a dram to three drams daily.

Of Belladonna, the powder of the root is esteemed the strongest; next the powder of the herb; and lastly the extract.

A grain of the root may be given every three hours, increasing to a scruple.

Three grains of the herbto a half a dram every three hours.

Six grains of the extract to two drams every three hours.

The powder of Nux Vomica, from a grain to one dram daily.

To us, it seems a pity that the London editor could not have given along with this report of doses, an abstract from the bills of mortality in the hospital, where they were administered.—We should be glad to know what proportion the doses of arsenick, corrosive sublimate, copper, lead, and the like, bears to the doses in the list here copied.

If, as in the first proposition, "some substances act on the fibre in a manner directly opposed to stimulation," it follows,

that as stimulation is a *positive* condition, the directly opposite to this state must be a *negative* circumstance. Yet in the conclusion of the first proposition it is stated, that "*those effects which Brown attributed to a negation of stimuli, are to be ascribed to the positive action of contra-stimulants.*" If their words have any meaning, the effect produced by contra-stimulation is first a *negation*, and yet cannot be a *negation*, because the effects that Brown thought to arise therefrom, are the results of the *positive action* of contra-stimulation.

According to the second position, "contra-stimulants have *the power of subduing, even without any evacuation whatever,* the effects of excessive excitement," which can only be by reducing this to the healthy condition. The object of their application would be to lessen that which is already morbidly increased and not to produce any *positive action*, because, in the close of the same proposition, it is stated "that when they are *too liberally applied*, diseases are produced, which the administration of *stimuli alone* can relieve."

The fourth proposition informs us "that we have in the class of contra-stimulants, a set of remedies adapted to the cure of every morbid condition resulting from excessive stimulation; and which may be used like bloodletting or purgatives." This proposition teaches us that morbid conditions do result from excessive stimulation; and these morbid conditions are of necessity existent in the solids or fluids, which being produced by *stimulation, are to be restored by unstimulating them. This is* to be produced without any evacuation whatever, and therefore by the positive virtue of the medicines themselves, not owing to any change they produce by removing an offending cause.

But to avoid dragging our readers through such a wilderness of words, to which there is *no* meaning, or none can be attached, without converting the whole into a tissue of absurdity, let us *leave the opinions to their fate, after quoting their doctrine of* life, in which Gelmetti and Tommasini collect their strength, and make a final plunge into the depths of obscurity and hypothetical dogmatism.

"Life is the *result* of the action of *stimuli*, applied to the *living* fibre, and of the reaction of the fibre; and is therefore to be regarded as a state of continued *violence* that would soon bring about the destruction of the organization if it were not

moderated by other agents. These are powers that directly depress the excitability or diminish the intensity of stimulation, *and they are named contra-stimulants. When the excitement* of the solid is justly balanced by contra-stimulants, health is the effect, the organization being supposed to be perfect. If the organization of any part be injured, or if the quantity of stimulation or of contra-stimulation be excessive, the one not exactly counterpoising the other, diseases are the consequence, and these are either organick, hypersthenick or hyposthenick."

[*Tommasini Lettura Introd.*]

The vicious employment of terms has often given a temporary celebrity to notions, which if stated in plain English, would be rejected by the common sense of mankind. It has been thus with Brown—it will be thus with the new Italian Doctrine. For as long as the jargon is repeated without examination, it will gain admirers—the intensity of whose admiration will be proportioned to their inability to detect the imposition. A *calm investigation of the doctrine and practice will convince all* persons, that it is not founded in philosophy or common sense. That it is rather the work of the imagination than the judgment and the practice so deduced from it, more likely to overcome every stimulus, than that which John Hunter has named "*the stimulus of death.*"

Disease results from a privation of the requisite materials for nutrition, or the action of noxious substances on the body.—*From both of which, disarray of function or structure is the* inevitable consequence As life is not stimulated into existence, neither is it stimulated to continue alive. Life is not acted upon by agents placed in connection with the living fibre, but acts upon them, as is proved by the fact that none of these stimulating substances act on dead matter. Then the only purpose we have in using any medicine is to supply something that is deficient or remove something superfluous. In this is contained all that is rational in the practice of medicine. Excessive stimulation is a cause of disease. By diseases of excessive stimulation is meant the "morbid condition" left by such excess. If the "morbid condition" is not *excessive stimulation*, why prescribe contra-stimulants? Why not endeavour to bring the patient into such a condition as is nearest the natural, by removing every source of irritation? This is not the object

in the Italian doctrine. Contra-stimulants, in other words, vast quantities of highly active substances are to be thrown in to—counterstimulate the "*effects*" of excessive stimulation.

If each of these theories were mere experiments in argumentation it would not be of much consequence how they were decided. But like violent revolutions in society they are attended by great destructions of *life* as well as habits and modes of thought. Whatever defects existed in the theories of Boerhaave, Hoffman and Cullen, as they were built up from practical observation, they were harmless, when compared to those which have emanated from persons who have first made their theory, and then accommodated to it their practice.

"I have proposed, (says the *Enthusiast*, BROWN,) a principle which every thing clears and confirms. By which, a conjectural art, filled with incoherence, and false in almost all its parts, is at length reduced to a fixed science, which may be called *the science of life*"!!

"O! curas hominum quantum est in rebus inane?"

ARTICLE VI.

ON THE ACTIONS OF THE

ANIMAL ECONOMY.

*Some observations on the Propriety of explaining the Actions of the Animal Economy by the assistance of the Physical Sciences.**

[Read before the Philadelphia Academy of Medicine.]

NOTHING, perhaps, is more justly entitled to our admiration, than the universal agreement to be observed between the various parts of the system of nature. In whatever aspect we contemplate the subject, we see such a continual subserviency of causes to the production of effects, which in like manner are the agents in succeeding operations, that we cannot avoid inferring, that the Mind which *designed* the whole, must have

* This was written by the editor of the Reporter for the Philadelphia Journal, (in the 5th number of which it was published, and) from which it is now extracted. As the principles this essay is based on, are such as we hope, during our editorial career, to develope more fully, and have for their grand object utility, we trust that this will be a sufficient apology to the accomplished editor of that paper, for the liberty we have taken.

been omniscient. Nor is this more clearly developed in the design, than it is established by the execution—where we find that the perfection of the work consists in always being the result of causes that depend on some great first principles, and not on any particular and temporary exertion of power.

Thus, however extraordinary phenomena may appear at first view, we can most generally trace them to the agency of a few principles. These act with so much regularity and precision, in the cases with which we are best acquainted, that we recognize them wherever they occur, and predict their results with certainty and ease.

To show the existence of the same agreement in the human system, is the purpose of these observations. We desire to establish the position, that the animal economy exhibits the same harmony which is to be discovered in all the parts of the great system, and that in it nothing is effected, without the aid of the ordinary known laws of nature.

The difficulties of this undertaking do not arise so much from any obscurity enveloping the subject, as from the prejudices of those against whom we argue. From the extreme of credulity to the extreme of scepticism, is not an uncommon movement—and we find, that from allowing the functions of the animal economy to be performed entirely by the agency of the ordinary laws of matter, multitudes now as firmly deny their presence in any case.

This negation is founded on this ground: It is contended in the first place, that we cannot *demonstrate* the operation of these laws in many instances—and secondly, that we cannot imitate the results by their assistance out of the body.

Now, our belief in the existence of certain bodies and principles is established either from demonstration, or by a necessary inference. In the human body, we know there are blood-vessels for conveying, and blood to be conveyed to the different parts. This we can demonstrate. Cut the vessels open, so as to draw off the blood, or compress them, so as to prevent its passage, and the parts are no longer nourished. Here we infer, of necessity, that the blood is the source of nutrition, although we cannot demonstrate it in the act of nourishing.—Neither do we know of any other means by which the body can be supported.

In the same way, we cannot prove by demonstration that the bones are possessed of absorbent vessels. Yet we believe in their existence in bone, of *necessity*, as we observe the bones to be altered and removed, to a greater or less degree—and we are ignorant of any other way by which such a removal can be effected in the living, healthy system.

To apply this mode of reasoning to the case in point, is not difficult. The human body is composed of a variety of parts, each of which is, as far as they are known, exactly similar to certain substances, with which we are acquainted by previous investigation. Thus we have gelatin, albumen, fibrin, earth, alkalies, &c. To repair the waste of the system, we take into the stomach food, whence the materials for such repair is obtained. From the various actions exhibited in the sustenation of the animal machine, we have those phenomena exhibited, the aggregate of which are called life. The mode in which the processes are conducted, as digestion, assimilation, &c. are said to be by the governance of the laws of life. In these cases, it is demonstrable, that the materials taken into the body go to the nourishment of the system, and that they are disposed of according to the laws of life.

Here it must be carefully recollected, that the vital principle is only known to us by its effects, as all other things are, by their qualities. By the *laws* of life, must always be understood the *rules* of *action*, according to which the operations of the system are effected. A rule of action, relates only to the *manner* in which the act is to be performed. It is not the act itself.—Thus by expanding the chest, we bring air into the vessels of the lungs. Certain changes are wrought, both in the air inspired, and in the blood of the lungs. The *law* of life here determines the *manner* in which the two substances are to be approximated. The law of life is not *air*, nor *blood*, neither is it the *changes* which have taken place.

It is to be shown that agents taken into the system are influenced, while in the system, by the ordinary qualities of matter, and this of absolute *necessity*.

All substances in nature, are endowed with properties, essential to their existence. The least variable of these, is that modification of power called chemical affinity. This is the

power which unites particles of dissimilar character. As the particles of matter are all possessed of this affinity, so the chemical combinations effected, are owing to the individual affinities of each particle, of the one side, for the particles of dissimilar character, individually, on the other.*

To prevent particles from forming combinations, it is necessary that there should be present a power capable of counterbalancing the attractions, otherwise the union will take place. Where this counteraction does not extend so far as to prevent the action entirely, it modifies it in a ratio proportioned to its energy. In the human body the modifying cause is the vital principle, acting according to what are called the laws of life.

If, then, materials endowed with certain properties be required for the support of the system, we hold it equally true, that the changes effected in the system, are mainly owing to the inherent properties of the substances taken in. The law of life determines the mode or proportions, in which the materials are to be brought together, and though it has the power of modifying, yet it is not chemical affinity. The chyle is added to the venous blood of the left subclavian, and poured into the right side of the heart. The fluids, chyle, and venous blood, are extremely different in chemical character, as well as in appearance. Thrown from the right auricle of the heart into the pulmonary vessels, we find many curious changes have taken place. The chyle has lost its white appearance, and the venous blood its dark hue. It likewise assumes a vermillion colour. It has lost much carbon, and its chemical character has undergone marked alterations. Here, again, the *law* of life governs the manner of the process. The materials are not life. As materials, they must possess their distinctive attributes, or they do not exist. The law of life places them in a proper relation, and the laws of affinity combine them together. We do not, as we might, insist on the discoveries of the chemists as to the *peculiar* internal changes in these processes, but are contented with the establishment of the general principle.

In the animal economy, we will resort to the substance bone, for further support of the truth of our position. Bone

* Vide "Berthollet's Chemical Affinities."

owes its solidity to the earth lime, in combination with phosphoric acid. Lime is a compound substance formed by animal bodies. Its elements are not yet known. Phosphoric acid is a substance formed in like manner. The laws of life bring them together, and their characteristick affinities combine them firmly.

Nature, in all cases, works by means. She never employs more causes than are sufficient for her purpose. The laws of action belonging to matter, fit them for her operations, where otherwise a perpetual interference would be required to prevent her structures from falling into ruins. A great errour in reasoning on these subjects, springs from mistaking an arbitrary system, followed for convenience, and receiving *it* as the *principles*, which are independent of any system. Thus some men associate a set of crucibles, or particular experiments, with the name Chemistry. Mention Natural Philosophy or Mechanicks, and their ideas carry them no farther than an air-pump or a cart-wheel. Such men reject the agency of gravitation, electricity, affinity, &c. because some have failed to explain their modes of operation. But the principles of our knowledge, are not of to-day. Grammar is coeval with language—the principles attempted to be developed by the different physical sciences, began with the universe. These principles are of *necessity* immutable in their operations. The systems of philosophers, unfortunately for us, are too often little better than records of errour.

We have evidence of other laws operating in the body besides those of chemical affinity. By examining the various joints of the body, we shall see provisions of different kinds against various evils, which would otherwise result from the exertion of the laws of ordinary matter on parts composing our frames. In certain joints we find a substance interposed, which averts the evils that would arise from shocks caused by the sudden gravitation of one part of the body on the rest. This safety is owing to the elasticity of the interposed mass. Elasticity is one of the properties of ordinary matter—so is gravity. The laws of life place the materials, and regulate their nourishment. The object to be accomplished is the doctrine of elasticity—which is a result of the law, and is not the law itself, nor is it life.

The body is transported from one place to another by living instruments, formed according to the laws of life, and moving, and acting, so as to move the body according to the laws of matter. Thus, when the body is moved in various ways, the force and direction are according to the lever which is used. If we attempt to leap from the earth, the body is propelled from it by the well known principle of reaction. If we use the muscles of one side only at a time, the motion of the body is oblique— if we use both at once, we are moved forward according to the doctrine of the resolution of forces. We see in the socket of the eye the mechanical contrivance of the pulley, as in the case of the trochlearis—at the knee, as the quadriceps—the circumflexus palati, at the top of the throat, and the Peroneal muscles of the foot as they pass to their insertion, under the external ancle.

These trite instances are mentioned to show that the human body does not constitute an exception, and a solitary one, to the other parts of the universe. And as it conforms to the general rule in so many instances, it is possible that our imperfections are the causes of our inability to see its entire harmony. The fact is, that the abuse of terms is the great agent in keeping up the disagreement among medical philosophers. Certain of these terms have no precise meaning, as they are generally used. they serve, however, as a sort of refuge from every difficulty. Thus with a great number, the term "secretion" is a citadel to which they retreat when they are set upon—especially when debating upon the present subject. Yet this is a harmless little word—one that does not at all strike against the correctness of our sentiment, "that the agency of the laws of ordinary matter are by no means incompatible with the laws of life." Of course we do not insinuate that the same changes take place in the system, as out of it—but that the principles, under different modifications, are employed in it as effective instruments.

Let us now enquire into the meaning of the term "secretion." Its immediate derivation is from "secretum," the root of "secernere," *to separate.* When we say that any substance in the human body is a secretion, we mean that it is a separation from the alimentary mass or the nutrious fluids. Thus the chyle is secreted from the food—the blood from the chyle—milk, saliva, bile,

&c. from the blood. In other words all these substances existed before they were separated. Their elements are separated by appropriate instruments, governed by the laws of life—and their combinations are effected by their individual and immutable affinities. They did not combine before separation, because not presented under proper circumstances. As soon as freed from the modifying influence of the mass whence they were secreted or separated, they combined.

Thus it may be stated, that animal temperature is not the effect of chemical combination, and that it is the result of "secretion." We have no objection to the latter conclusion. In saying that it is a secretion, its previous existence is acknowledged, either in the body itself, or in the alimentary mass. Secretion, or separation from the situation it before occupied, must be owing to some change in the mass that contained it. The laws of life may determine the proportions—but it is alone owing to the laws of affinity that it becomes evident to our senses.

It may be remarked that there are many cases of morbid action, where there is most positive evidence of the operation of chemical affinities. If we take the case of diabetes mellitus, we shall find that a very unusual quantity of saccharine matter is formed. Now, we cannot suppose this sugar to be formed of any thing but its own elements, however they may have been brought together. Nor can they be held together as sugar by any thing but the affinities of their individual particles each for each. We may take another case, dropsy, for instance, where the quantity of water thrown off by the action of certain medicines greatly exceeds the quantity taken in. The water may be called a "*secretion.*" It is so, since it is separated from the fluids of the system, and from the aliments taken into it. Yet, however this may be, it can only exist as water by the aid of the elementary affinities of its particles.

Ever since medicine was cultivated as a science, it has suffered much from prejudiced and contracted views of its character. By many it has been regarded as a conjectural science entirely, or it has been esteemed one which can only be advanced by observation and experience.

To say nothing of incorrect observation or false experience, we may ask such persons what is the aim of observation and experience? Is it not to make such a collection of facts as will en-

able the physician to generalize with safety? If the science of medicine consisted of nothing but insulated facts, how would it ever be taught or practised? Would it not be a mass of ill digested materials, almost entirely useless from its confusion?

One great errour has been to separate the parts of the study of medicine from each other: to consider the whole as in like manner separated from all other sciences: to look on the actions of the human system as mysteries, and to consider all attempts made for their analysis as nugatory. Thus anatomy is separated from physiology, pathology, and even surgery. One might almost say, that it is separated from itself. as it is now fashionable to study it in fragments or tatters, rather than as a great or connected whole. Physiology is severed from other sciences. Natural philosophy and chemistry must not be thought of. Because some have erred in their deductions, the whole round of principles are to be rejected. What gain we by this? instead of explanations, a mystical jargon of "laws of life," "secretion," "vital energy," and "vital principle"—words which, when used according to their real value, are of excellent service. As frequently employed, however, they are worse than useless, as they shut out the light.

Those who are enemies to the application of reasoning to our science, are generally mistaken in their estimate of observation. They forget that the mere observer and recorder of experiments, is to the true physician, or medical philosopher, what the quarrier is to the architect. The one gathers the materials with which the other builds. But for the quarrier, the fair proportions of the Parthenon, or the sublime extent of the Coliseum, had still been imprisoned in the rock: and without the architect, what an unsightly mass of rubbish would the labours of the former have left behind. It is thus with the mere observer in medicine. He is a most useful, though an humble agent. He collects materials assiduously: the philosopher examines his stock, selects the valuable, rejects the superfluous, and constructs those useful systems, which, in proportion to their adherence to correct principles, are the lights and guides of our profession. How happy it is for the science when the two characters are united in one mind: where experiment is the handmaid to reason, and philosophy guides the steps of observation.

ARTICLE VI.

EXTRAORDINARY CASE IN OBSTETRICKS.

An Extraordinary and Interesting case in Obstetricks; communicated for the Western Quarterly Reporter, by Doctor Wm. N. Luckey, of Circleville, Ohio, in a letter to the Editor.

Circleville, February 25th, 1822.

DEAR SIR,

Herewith I transmit you an account of a case in obstetricks, falling under my observation not exactly similar to any that I have read of, though it is possible that it is not the only case of the kind that has occurred. Certainly, under any circumstances, it is sufficiently interesting in itself, as an evidence not only of what strange aberrations may happen in the animal body, but of what nature can sustain and perform to rid herself of an incumbrance.

On the 15th of February, 1820, Mrs. B. H——, aged 29 years, the mother of two children, (the youngest of which is ten years old, and with both of which she had easy and natural labors) was attacked with pains in the back, loins and abdomen, accompanied, as she thought, with pungent pains in the uterus.

These were succeeded, in a short time, by an uncommon degree of soreness and tenderness over the whole abdomen. About the 27th of June, she experienced a cramp of the abdominal muscles. The breasts began to swell and contained milk, although a very considerable menorrhagia came on, and continued during three or four weeks. On the 27th August, I saw her. She expected the full term of her pregnancy to expire in four weeks, but feared a premature labor was about to take place.

Upon examining *per vaginam* I found the clitoris very much enlarged, so much so, that when I first attempted to introduce the hand, I was inclined to believe it a case of arm presentation. My efforts to reach the *os tincæ*, were unavailing, and it seemed as if the *fundus uteri* was in a line with the vagina.—Through the intervening substance, the cranium of a fœtus, which from the sensation thus communicated, appeared to be about five months advanced, was discovered in the uterus.

The swelling and inflammation of the clitoris, were reduced in eight or ten days, by the use of cooling and astringent applications. No alleviation of her distress was produced by the use of either mild or active cathartick. The pain was lessened, but not removed by the use of anodynes, even in very large doses. The application of blisters over the abdomen were equally unavailing in mitigating her terrible and agonizing distress. The same may be observed of the other medicines resorted to. The soreness of the abdomen still continued, and all our efforts to afford relief to this patient, were frustrated by the obstinacy of her pains.

About the 16th of October, a very active cathartick was administered, which operated powerfully. An emetick was given two days afterwards, and when it had ceased to operate, the warm bath was employed four times, but without effecting any change in the position of the womb, or alleviating the continued distress in the abdomen.

On the 1st of November, menstruation recommenced and continued regularly until the 20th of April, 1821. The breasts subsided, without any evident increase or diminution of the abdomen. She remained in this state without any perceptible alteration, until the 1st of June, when an evident enlargement of the abdomen came on, accompanied by inexpressible distress. Such was the agony and torture she felt in the abdomen, that she was extremely solicitous to have an operation performed for the removal of the child. When I explained to her the nature of the *Cæsarian section*, she became more earnest in her solicitations, that she might be relieved in this way. However improbable it seemed that this desired relief could be obtained by the operation, I assured her, that if my professional friends should, when consulted, agree on the propriety of the operation, I would cheerfully assist in its execution.

Accordingly, after communicating with my friend Dr. Wilson of Lancaster, and Dr. Persons of Columbus, I called upon Dr. Edmiston of Chillicothe, and Dr. Turney of this place, all of them gentlemen of skill and experience in the profession.—I was accompanied to the house of the patient by the two last named gentlemen, who after due examination, at different times, declared themselves at a loss, as well as myself, to ac-

count for the continuance of a pregnancy so far beyond the ordinary period; while they were equally unable to account for the enlargement of the abdomen, and the indisposition. A physician who visited her supposed the protruded abdomen to be owing to a schirrous state of the uterus. Doubts being entertained of the existence of a child within the womb, an operation so generally fatal as the cæsarian section, was withheld until further circumstances should demand it. The excruciating pains were in some degree lighter, but she continued in a weak, dejected and much emaciated state, but without any discharge from the vagina: Her visage was pallid and anxious; her countenance was marked by misery in such a manner as cannot be described in words; scarcely indeed to be portrayed by the pencil.

October 1st, 1821, *Four fœtal bones* were discharged PER ANUM. A rib of each side; a tibia and fibula. She felt somewhat relieved. On the fourth of October four more bones were discharged; two ribs, a clavicle, and oshumeri. October 6th, five bones were discharged in the same way. December 11th, the petrous portion of a temporal bone escaped. Menstruation commenced again; the health is improving; the countenance now appears ruddy. Bones are from time to time discharged, and *always* without the *slightest degree* of pain. Some degree of soreness, however, is felt when the abdomen is pressed on. She is now able to attend to her household affairs, and there is no reason to doubt, but that she will, in the end, completely regain her health and vigor; although she remained pregnant for twenty-two months, without any change occurring in the size of the fœtus, after the fifth month from conception.

If I were to give any opinion on this case, I should say, that there was, most probably, a retroversion of the uterus, followed by adhesion and ulceration of the part in contact with the Rectum. That the case was not one of a *ventral* extra-uterine conception, I argue from the displacement of the os tincæ, which was thrown up in such a manner as to be out of reach; nor was it a case of ruptured uterus, and escape of the fœtus into the abdomen, as there was no symptoms to justify any such opinion; either by sudden effort or violent exertion of the abdominal muscles. It is not a little curious, if the case was a retroversie

uteri, that there should have been no inconvenience experienced from the state of the bladder.

Since the occurrence of the above case, I have made some search in various quarters to find whether any thing similar had happened. The cases mentioned below, the first by Mr. Coleman, of Norwich, is published in the London Medical and Physical Journal, vol. 2. The latter by Mr. Mainwaring in the transactions of a Society for the improvement of Medical and Surgical knowledge.

Believe me respectfully, yours,

WM. N. LUCKEY.

CASE 1. BY MR. COLEMAN.

"Mrs. Cooper, of Lakenham, sent for a midwife, on the 25th of December, 1798, who informed her, she would be delivered in a very short time, and caused her great pain, with a small *discharge of blood, which continued for some days; I suppose,* by endeavouring to rupture the membranes, mistaking the vagina pressed down before the head of the child, for the membranes.

"She was at that time, at the full period of her reckoning. On the 7th of January, 1799, I was sent for, and as she had no pain, I waited a considerable time; and, on examining her, found a globular substance very low in the pelvis, which I supposed to be the head of the child; but I could not discover the os uteri. I staid with her some time longer, and told her nothing could be done; but desired they would send for me if her labour came on. She had borne children before, and had been accurate in her reckonings.

"The very deep snow of 1799, falling soon after this time, rendered the roads, from Norwich to Lakenham, impassable for some days; and I thought she had been obliged to call in such assistance as could be procured in the town, till I was informed by one of her relations, whom I attended, that she was very unwell, but not delivered: I, therefore, called upon her, as I thought there must be something singular in the case.

"She told me, she had felt nothing of the child since Christmas day; but that she was certain she had, previous to that time, although different from her sensations on similar occasions. The body had nearly the same appearance as in natural

pregnancy, with an unevenness a little above the os pubis. The whole had not exactly the usual globular form of the impregnated uterus. She had, at this time, exceeded her reckoning more than two months.

"I found the child's head pressing down very low, and could not discover the os tincæ in its usual situation, but I thought I discovered it above the os pubis. On endeavouring to pass the finger towards the sacrum, (the usual situation of the mouth of the uterus where it lies high,) it could not pass, owing to the vagina obstructing it in every direction backwards. I could pass the finger very high by the pubes, in which situation I found the os uteri as before described.

"I mentioned my suspicions of its being an extra-uterine fœtus to Mr. *Cooper*, surgeon of the third Lincoln Militia, and requested him to see her with me. He thought it was the os uteri above the pubes, which could not be felt very distinctly, as it was situated very high. I examined her again, and concluded it was an extra-uterine fœtus, lying between the rectum and the womb, pressing the uterus up against, and chiefly above, the pubes.

"Mr. *Rigby*, (whose opinions upon these subjects are much respected) having seen her in the earlier part of her pregnancy, I mentioned the case to him, and asked him to see her with me. I was prevented being present at the time appointed, but requested he would examine her; his opinion was, that there was something extraordinary in the case, *but was not fully confirmed that it was extra-uterine.*

"Her health was very much impaired, being affected with diarrhœa, for which she occasionly took opiates and astringents. I was sent for to her on the third of May, she being now more than four months past her reckoning. I found her very weak and low, her mouth sore, pulse quick, and the diarrhœa continuing: she had ejected during the night a considerable quantity of fœtid bloody water. On examining her, I found an opening unlike the os uteri, and my finger passed immediately into the head of the child; she had no pain except what I gave her, as I used some force, pressing upon the inside of the bones of the cranium, and endeavouring to dilate the opening. I left her, and called again, taking Mr. Rigby with me, who examined

and brought away one parietal and the occipital bone, and also one of the temporal bones: she was very much exhausted and faint; we therefore left her, fearing it would be impossible to extract the whole of the fœtus. Mr. Rigby called on me on the fourth, and after some conversation I saw Mrs. Cooper, and found the other parietal bone in the situation it was left on the third, or nearly so, which I, with difficulty, brought away. By introducing my fingers into the opening in the vagina, and fixing them upon the vertebræ of the neck, I brought two of them away; but finding the shoulders obstructed by a part of the vagina, I pushed my hand past it, got my finger into the arm-pit and at last succeeded in bringing away the remaining part of the fœtus, in a highly putrid state, no portion of the navel string remaining.

"It appeared to be a male child at the full time when it died, both from the formation of the bones and the size of the fœtus. The woman was so faint and exhausted, that I thought it more prudent to desist from introducing the hand to examine for the attachment of the placenta, concluding that the least evil would be to trust to nature for its expulsion, if it was not already dissolved, and in a state to come away with the discharge.

"On the fifth, I called again, with Mr. *Aldhouse*, and found her very low and faint; she had purged, and her mouth was covered with aphthæ,—the discharge considerable, and very offensive; the womb was nearly in the state before described, but lower, the opening in the vagina through which the fœtus was extracted, extending nearly to the neck of the uterus. We could now distinguish the neck of the uterus, and the uterus itself, by the touch; the finger passing backwards into the large cavity from which the child was extracted. There was no doubt of a communication between the bowel and the cavity, as some seeds of a cake eaten the day before, came away on Mr. Aldhouse's fingers, with a portion of fœces. Some fœces likewise passed daily by the vagina, although she had a natural evacuation every day.

"She remained in the greatest danger for some time; her mouth very sore, purging at times, &c. Her plan of medicine was cordials, astringents, and opiates, as occasion required.

with wine and nourishing soups, as the stomach would bear them.

"She is at this time, August 16, 1796, able to manage her domestic affairs, she passed her stools naturally, but is obliged to wear a cloth, as some fœces pass by the opening of the vagina. The quantity which passes the latter way being much lessened within the last month, makes me entertain hopes that the opening into the bowel may close."

CASE 2. BY MR. MAINWARING.

"An examination *per vaginam*, was submitted to for the first time, in the month of July, 1796, the patient having then attained, as I apprehend, the sixth month of her pregnancy.

"A tumor was found in the hollow of the sacrum, occupying its whole extent, and projecting so much forward as nearly to fill the cavity of the pelvis. It seemed to lie between the vagina and rectum, and was less than two inches within the pelvis, reckoning from the external orifice.

"The os uteri was altered in its shape and situation, being pressed against the bladder and pubes. The cervix uteri was so fixed in its situation, as to resist any attempt which was made to move it upwards. From these circumstances the urine was passed with difficulty.

"The shape of the tumor in the hollow of the sacrum was nearly round, but somewhat flattened upon the anterior part. In breadth it was supposed to be between three and four inches, and in thickness from two to three. It felt moderately firm."

"After a long series of sufferings, this poor woman's case terminated favorably, by a discharge of the bones, &c. of a fœtus through the rectum. The process took up a much longer time than happened to Mr. Colman's patient; for this occupied a period of two years and upwards: but when the account was written, Mr. Mainwaring's patient was restored to a more perfect state of health than Mr. Colman's."

MISCELLANEOUS.

AMERICAN INTELLIGENCE.

Account of an improved Cupping apparatus, invented by Mr. Coleman Sellers of Philadelphia.

ALTHOUGH the advantages of local bleeding in a vast num- of inflammatory affections, have been long well known to the medical world, yet, owing to the difficulty of procuring any instruments, or the imperfections of instruments when to be obtained, the remedy has seldom been used to any extent, unless in large cities, where it is performed by persons exclusively devoted to it. But by the ingenious improvements of Mr. Sellers, the cupping apparatus is freed from the inconveniences belonging to its original contrivance, and by its neatness, simplicity and low price rendered capable of speedy and general usefulness.

In applying the cups exhausted by burning some substance in them, few persons engaged in general business, are able to acquire sufficient skill to avoid burning the patient—to say nothing of their inability to fix the cups with so much speed as to preserve the vacuum formed by the fire. When the cups are placed by the exhausting pump of the ordinary cupping case, this instrument must be screwed to the cup, and necessarily unscrewed, after the cup is attached to the scarified surface by the atmospherick pressure. The difficulties of thus applying eight or ten cups in succession need scarcely be pointed out and the expense of a case of these instruments is too great to be incurred especially by country physicians.

Mr. Sellers' improvement consists in adapting an exhausting pump of the simplest construction to the cups, which have a valve in the centre of the top corresponding to the point where the screw is situated in the old instrument.

The lower end of the exhausting pump is concave and of a size corresponding to the top of the cup. To this concave extremity is fixed a piece of soft leather. The rod of the piston is strong brass, and the valve at its extremity is rendered perfectly air-tight by a circular piece of leather so attached as to be more closely applied as the effort is made to raise the piston. When the cup is to be fixed after the scarification has been made,

the piece of soft leather on the outside of the pump is wet, so as to cause it to swell and prevent the air on the surface of the cup from being drawn into the pump, instead of that which should pass from the cup through the valve into the exhauster.

We understand that Mr. Sellers is about to turn his ingenuity to the improvement of the scarificator, which at present is an unpleasant instrument, because of the noise it makes when the spring is let go, and the difficulty of keeping the lancets clean. We shall receive the earliest information on this point and shall be happy to present our readers with the result of his experiments. From our knowledge of his great skill and talent in the construction of useful machinery, we confidently anticipate his success.

The same gentleman is the inventor of a chain for maniacs, the links being composed of leather riveted together. This is of great strength, but is light and makes no noise—so that one of the worst evils attendant or confining these unfortunates, is obviated, as they may be freed from the heavy and clanking chains ordinarily used.

A new Instrument for Cataract.—Professor Gibson* has lately invented an instrument, exceedingly well calculated for cutting to pieces the chrystalline lens, in all cases of cataract. It is well known, that the knives of Saunders, Sir William Adams, and other oculists, are defective, in not being sufficiently strong and sharp to divide the lens, when it happens to be of a very strong texture. Under such circumstances the cataract is soon dislocated, in the attempt to divide it by the knife, and is either depressed into the vitreous humour, or else enucleated from its capsule. To obviate these inconveniences, Dr. Gibson has contrived a scissors so delicate, as hardly to exceed, in size, the iris knife of Sir William Adams, and, at the same time, so strong and sharp as to cut, with ease, the most solid and compact lens and capsule, without injuring, in the slightest degree, any part of the eye. These scissors are formed upon the principle of Mr. Woollaston's scissors, used for common purposes—with the edge so constructed as to operate like a knife. On

* Of the University of Pennsylvania; whose love for the profession is only equalled by the assiduity and talent he displays in surmounting the difficulties of our art. EDITOR.

this account, the instrument perforates the coats of the eye with the utmost facility, and when introduced, the blades can be opened to a certain extent, so as to cut the lens to pieces, without bruising it or any other part—the necessary effect of scissors as they are usually made. This instrument possesses another advantage—the lens is supported in its natural situation during the operation, by having one blade behind, and the other before it, so that it may be cut to pieces, in situ, and its remains afterwards forced, by the shut blades, into the anterior chamber, for dissolution. In this way the operations of Saunders and Adams may be performed with great effect, and with out that necessity for repetition which so often occurs, when the common instruments are employed, Dr. Gibson has made trials with the instrument, sufficient to convince him of its decided superiority over every other used for the same purpose.

Phil. Medical and Physical Journal.

FROM FOREIGN JOURNALS.

AN interesting notice is published in the London Medico-Chirurgical Review, of the "new instrument, the Dilator," invented by James Arnott, esquire, the object of which is to supply the deficiency caused by the abandonment of the caustick bougie in Surgical practice. As stricture of the urethra is productive of so much inconvenience and distress, and the parts are so very irritable, and frequently almost unmanageable, that practitioners of surgery will be anxious to hear of any treatment which has been devised for the removal of this disease, more especially when as in the proposed instrument it is to be done without much pain.

This instrument "consists of a strong air tight membranous tube as of oiled silk lined with thin gut, about an inch and a half in length, which is introduced into the stricture in its empty or collapsed state, and is then filled to the necessary degree of pressure, with air or water, from a syringe without, and is again emptied before being withdrawn. The dilator while opening the stricture, remains precisely in the same position within it; so that however strongly its action may be required or exerted, even when an old stricture is completely opened by it at one application; it cannot like bougies, either pierce the urethra or tear it, as it is introduced in its shrunk or collapsed

state, no painful or injurious friction is then occasioned. From its being changeable in its dimensions, it will enter an urethra with the narrowest orifice, and still dilate a contraction in any part to the natural size, or beyond that if necessary, without stretching like the bougie the whole canal anterior to it. For the same reason the dilator acts equally on the whole of a long stricture or on several strictures at once."

The parts necessary to the construction of this instrument are a canula of elastick gum, or tin or silver, to one end of which the dilating bag of silk lined with gut is accurately tied, and through which a silver wire of greater length than the canal is introduced for the direction of the dilating membrane through the stricture. The upper part of the canula is fitted by a screw, for being attached to the end of a syringe, by which the fluid is to be thrown in.

The only difficulty which can prevent this instrument from being fairly tried, will be the difficulty of passing it through very small strictures. This will be acknowledged by all who have seen this disease to be by no means inconsiderable. In fact so many obstacles are opposed to the use of any surgical treatment under such circumstances, and so completely inadequate do the means become that have been successively adopted, that we almost certainly anticipate the time when the only remedy for stricture, will be division by the knife. There are many instances of entire success in this country from such practice, nor do we know why it should not become general. There are some circumstances to prevent the division of the stricture as an universal rule, being adopted. But in nineteen cases out of twenty, the patient and his surgical attendant would be relieved from great distress and solicitude, by dividing a stricture with the lancet—removing thus the irritability of the patient, and then by wearing a catheter until the incision healed, do away the chance of its renewal in the same place.

The principle of Mr. Arnott's dilator is likely to be very serviceable when applied to strictures in the rectum, when there is a contraction of the coats of the bowel itself, not a narrowing produced by an enlarged prostrate gland. Such constrictions of the rectum as first noted, are unfortunately often the evidence of a peculiar morbid state, in which all treatment amounts only to palliation.

In the Western Country where surgical instruments are not so readily procured, we might prepare a good substitute for Arnott's dilator, by using the ureter of a calf or ox, introduced by a small silver wire, and subsequently dilated by the aid of a common syringe of small size. If these ureters are found to be too large or thick, a vein from a calf, hog or other inferior animal, would suffice. It might be well to turn all of these inside out before using them, as their internal surfaces are smoother than the external. If a vein be used, it is only necessary to leave the smaller veins coming into it about the eighth of an inch long, which when the vein is closed at the lower extremity and inverted, renders it air-tight. Perhaps a better substitute than either of these might be the trunk of a common carotid artery from some of the inferior animals. Mr. Arnott relates many cases of stricture of the urethra and one of the rectum, where he was successful in the use of his dilator. He also relates a case in which, by the aid of this instrument, he relieved a patient from a calculus in the bladder. Together with these facts, his work is enriched by many ingenious proposals for the improvement of the treatment of calculous complaints. The most original of these is the proposal to dissolve a stone in the bladder, by introducing its proper solvent through one tube of a double canula, so as to allow it to come in contact with the stone, and flow off through the other as fast as it flows into the bladder, the other tube acting as a syphon. Our limits will not allow us to say more in relation to this gentleman's proposals. Certainly they should have a fair trial, although their success is very problematical. At a future time we may again call the attention of our readers to this subject.

THE THEORY AND PRACTICE OF PHYSIC AND MATERIA MEDICA.

*Apoplexy.**—Mr. Serres, of Paris, has published some excellent observations on this disease. "Tired out with the fruitless attempts of distinguishing sanguineous from serous apoplexy, and constantly mortified by the uncertainty of the prognosis, when put to the test on dissection, he asked himself this ques-

* Johnson's Medico-Chirurgical Review, June 1820—see also, *Nouvelle Division des Apoplexies*, par M. Serres, in the *Annuaire* Medico-chirurgicale, vol. I. page 277.

tion,—*do apoplexies* differ *from one another in their symptoms?* Keeping this question in view, he closely observed the phenomena of the dssease at the bed-side, and was not long in perceiving that apoplexies assumed two very different forms—one simple and uncomplicated, with paralysis; the other constantly accompanied by the loss of motion on one or the other side of the body."—Of one hundred cases which he observed, he found twenty-one simple, and seventy-nine complicaied with paralysis. Dissection of the simple cases presented the following appearances. In sixteen cases there was *serous* effusion, either in the ventriclesor the circumvolutions of the *cerebrum*—one case presented sero-sanguineous extravasation in the left lateral ventricle—two were attended with a similar effusion between the arachnoid and pia-matral tissues of both hemispheres—two without any effusion whatever.—*In all the cases the brain was sound, but the menngers were altered in the following manner:*

1mo. In those instances, where the affection had continued long, and the serous effusion was considerable, the pia-mater was injected; its vessels much dilated; the tunica arachnoidea opake and thickened.

2do. In the case where the ventricle alone was the seat of the sero-sanguineous effusion, the arachnoides, slightly opake in the rest of its expansion, was *red* in the interior of the ventricle, with numerous miliary granulations scattered over its surface.

3tio. In the two cases where the sero-sanguineous effusion was on the surface of the hemisphere, the arachnoid membrane was sensibly inflamed.

4to. In the two cases without effusion, the tunica arachnoides had a dry and somewhat thickened appearance, with membrani-form exudations.

This constant co-existence of the serous effusion, and the alteration of structure, is considered by Dr. Serres as a strong presumptive proof of their connection as cause and effect.—A great many observations of a similar kind, led him to the conviction that in this species of apoplexy, unconnected with paralysis, the effusion depends on an irritation thrown upon the pia mater or the tunica arachnoidea.

There is, our author conceives, a very great difference between the organic lesions, which attend the simple and compli-

eated forms of this disease.—In the complicated apoplexy (that which is attended with paralysis) the *cerebral substance* is altered —cavities are discovered in the substance of the brain, filled with blood—this extravasated blood presents different appearances, according to the time that has intervened between the extravasation and the death of the patient. The parts of the brain immediately surrounding these excavations, are found red, indurated or yellowish.—From the foregoing considerations, the following conclusions are drawn—

"1mo. When an apoplectic attack presents no symptom of paralysis, we may presume that its seat is in the *meninges*, and that the substance of the brain is not dilacerated and altered.

"2do. When, on the contrary, paralysis becomes complicated with apoplexy, it is no longer the meninges, but the encephalon itself, which is the principal seat of irritation.

"3tio. Serous, sanguineous, sero-sanguineous, and purulent effusions, are owing to irritation in the meninges, or the encephalon, or to rupture of arteries or veins, which may take place during the apoplexy; that is, subsequent to the irritation.

"4to. If I am not mistaken, we may very properly designate apoplexies then, in the following manner: Where there is *no* paralysis, *I would call* the disease MENINGEAL APOPLEXY; where there *is* paralysis, CEREBRAL APOPLEXY. On a future occasion I shall treat of cerebellic apoplexies in a subsequent memoir. *I conceive that it is impossible to say, during life, which of* these apoplexies we have at any time to treat—if we have a simple apoplexy, all the members will be excitable, when a proper stimulus is applied, and the seat of lesion is in the meninges.—Is there, on the contrary, hemiphlegia, or any deviation from the natural posture of the mouth—then we have cerebral apoplexy."

Meningeal apoplexy comes on slowly—its most frequent pre*monitory symptoms are, a torpor of the whole system*; "a disinclination to mental exertions"—fatigue from the slightest exercise of the mind—"obtuse perceptions, overwhelming sleep, respiration and circulation slower than in health; vital heat below the normal point; diminution of the secretions; derangement of the digestive functions."

If this form of apoplexy supervenes on the suppression of *an habitual drain from the system, or of any cutaneous eruption;*

or if it comes on after some external violence inflicted on the head—such as a blow, or fall, its attack is much more sudden. —In meningeal apoplexy, according to Dr. Serres, the *mouth* is never distorted by being drawn to one side; and the patient lies straight in his bed—if stupor be not present, the patient will move his extremities when directed to do so.

Dr. Serres dissected 171 subjects, who died of cerebral apoplexy, attended with hemiplegia of the upper and lower extremities, and he found in *every* instance that the disorganization was seated in the *opposite* side of the brain—when *both sides* are paralytic, the disorder is in both sides of the brain—When the paralysis extends to every part of the body, as is sometimes the case, "and the patient dies, as from asphyxia, *or as animals who have the pneumo-gastric nerves of both sides divided*, dissection discovers the extravasation in the substance of the tuber annulare."

BRONCHOCELE.

The introduction of iodine into the materia medica, for the specific purpose of curing bronchocele, is due to Dr. Coindet, a very experienced practitoner of Geneva. In a former memoir, published by this gentleman, he expressed a wish, that, by the joint efforts of physicians and chemists, we should one day succeed in procuring a more suitable preparation of this substance than the one now in use,—to which many objections had been urged by some practitioners.

In the present memoir he expresses his conviction that the hydriodate of potash, used externally, will answer the object required; and in support of his doctrine, he relates some cases in which this preparation of iodine was used topically, with complete success, for the removal of bronchocele and scrofulous swellings.

Dr. C. directs a pomatum to be prepared for the above purpose, consisting of half a drachm of hydriodate of potash and one ounce and a half of purified hog's lard. Frictions are then made with a quantity of this preparation, of the size of a nutmeg, morning and evening, on the goitre and indurated glands, whether scrofulous or situated on the breast. Occasion-

ally, the frictions are to be practised in the course of the lymphatics, and continued till the pomatum is completely absorbed.

"A lady aged 28 years, suffered a long time a voluminous goitre of the right lobe of the thyroid and still larger in the left. It had increased considerably three years before; during pregnancy. I suppose that this was nothing but an augmentation of volume without organick lesion. *The goitre altered the voice* and impeded respiration. After using frictions for eight days, the tumors became sensibly softer, the skin became thicker and more loose: after five days the diminution was still more considerable; the goitre was divided into several small lobules, very distinbt from each other. At the end of a month the goitre had *entirely disappeared,* the voice and respiration had become natural, without the patient experiencing the least sensible effect from its operation."

Twenty-two other patients, afflicted with the same malady, were treated much in a similar manner; one half of whom have been completely cured, and the remainder considerably relieved. Dr. Coindet observed, on these occasions, that the iodine, *thus thrown into the system by absorption, produced exactly the* same beneficial results, as when taken internally; and when no organic lesion is present, the disease of the lymphatic system seems to be acted upon by the iodine, applied externally, with an energy equal to that attributed to the internal remedy.

In none of the cases in which this application was used, did there appear any untoward effect, such as the iodine, taken *internally, is known to have given rise to;* though Dr. Coindet thought it necessary to use as much precaution as if he had administered the medicine internally. The author takes this opportunity of remarking, that many local auxiliaries should be resorted to in the case of goitre, by which its removal or cure will be greatly accelerated: among these he reckons leeches and emollient fomentations.

Dr. C. next tried the hydriodate of potash, as a topical application in scrofulous indurated glands; and the success he obtained was beyond his expectation. He, however, prefers, in such cases, the solution of what he calls the ioduretted hydriodate of potash, taken internally.

The following notice of two successful cases will be read with interest:—

"A young woman aged 17 years had during 5 years a cluster of scrophulous glands under the angle of the lower jaw and down the neck, the lowest of which was ulcerated. A great number of remedies were tried in vain. I prescribed a solution of the iodurettted potass; in six weeks the whole of these tumors were dissipated, except that which was ulcerated. A fistula penetrating to its centre demanded surgical treatment for its cure. Another young woman aged 14 years, had for six months a cluster of engorged glands; all the general and local remedies used in similar cases had been tried without effect. In the course of a month, she was cured by the use of hydriodate of iodurettted po ass."

In some few instances the medicine, administered both internally and externally, seemed to fail.

It does certainly appear that iodine is a most powerful agent, and one which possesses a specific and stimulating power over the lymphatic system.—As such, it might perhaps be given alternately, or in combination, with mercury. In enlargements of the ovaria, one would think it a useful remedy; but care must be had not to administer it where fever is present, or during the period of excitement.

For the information of those who may feel disposed to give this remedy a trial, we have deemed it proper to subjoin a formula for the preparation of the hydriodate of potash, with which we have been favoured by Dr. Granville, who begs us to add, that this salt is found ready formed in the kelp for the preparation of soda.

"Make a solution of caustic potash, add a sufficient quantity of iodine, and shake the bottle well: the water is thus decomposed—iodic and hydriodic acid are formed, each of which combines with a proportion of the potash,—the former giving rise to an iodate which is little soluble, and consequently is precipitated,—while the latter forms the hydriodate of which we are in search, and which is highly soluble. The liquid containing it, is then to be filtered, and the residue washed with alcohol of the density of 0.82, so as to obtain another portion of the hydriodate—to be added to the former liquid, which may be set to crystallize. The salt is deliquescent, and has a slight yellowish tinge: it consists of 100 of hydriodic acid, and 37.426 of potash."

Thenard observes, that by the process of chrystalization, as well as by desiccation, the hydriodet of potash is changed into an iodurate of potassium. If so, the salt employed by Coindet, must need become a hydriodate during its trituration with the hog's lard,—the hydrogen of which it attracts, to form hydriodic acid.* *Lond. Med. Intel.*

* The truth of Dr. COINDET'S observations on the existence of *Iodine* in the Sponge has been beautifully demonstrated by Mr. BEST of Cincinnati, in his chemical lectures, this winter. Physicians desirous of trying the practice of the Genevan Doctor, may obtain this medicine, we believe, at a small expence by the aid of the Gentleman above mentioned. EDITOR, W. Q. R.

Experiments on Hydrophobia by M. Magendie, M. D.—M. Magendie remarks, that both in animals and men labouring under Hydrophobia, the most active substances, the most powerful narcotics, have no perceptible operation. This holds good, not only as to matters taken into the stomach, but injected into the veins. For instance, he has injected into the veins of dogs that were hydrophobick large doses of opium, (ten grains) without any percetible narcotick effect; while a single grain produced eight or ten hours of somnolency in a healthy animal of the same species. It was the same in man. M. Dupuytren and our author injected into the radial vein of a young man, in rabies canina, about eight grains of the gummy extract of opium, without any apparent result. Prussic acid was also injected into the vessels of dogs, with the same want of effect.—M. M. Magendie and Breschet inoculated a healthy dog with the saliva of the young man abovementioned, by inserting some of the fluid under the skin of the forehead. The animal became mad at the end of a month. Two dogs, bitten by the latter, became affected with hydrophobia in forty days. These last bit several other dogs, but without effect. So that, according to these experiments, the virus becomes innocuous in the third inoculation or generation. But to come to the main experiment of this paper.

The proprietor of a kind of menagerie, in Paris (*le combat des animaux,*) sent for M. Magendie to see a very large and strong bitch, in a high state of rabies. The constant agitation of the animal—hoarse and short barkings—and fierce expres-

sion of the eye, convinced our author that the animal was hydrophobic. Early next morning, M. Magendie, attended by several of his most zealous pupils, secured the animal with some difficulty and hazard. M. Magendie then opened the left jugular vein, and drew off about sixteen ounces of blood; after which he injected nearly forty ounces of water; during the latter part of the operation, however permitting ten or twelve ounces of blood and water to flow from the upper part of the orifice. The injection finished, the dog was let loose into her den; and to their great surprise, coiled herself up and lay down, as if to sleep, in the most perfect state of calmness. The fierce expression of the eye was entirely gone—she did not bark, and only ground her teeth, when a stick was put in her cage. M. Magendie waited an hour, during which the animal lay perfectly quiet. Some pupils were left to watch her.—About five hours afterwards she was seized with a difficulty of breathing, which increased, and killed her in half an hour more. On dissection, the brain, spinal marrow, and all the organs, excepting the lungs, were sound. The lungs were gorged with watery blood, and the mucous membrane appeared inflamed. M. Magendie, before the fatal termination of this case, accused himself of having injected too much water, and anticipated effusion in the lungs. What led him to this experiment? It was from observing that, in artificial aqueous plethora, the various functions of the animal, especially those of the nervous system, were very evidently enfeebled. Now, in rabies, the excitement of the nervous system is carried to its utmost limit; and hence he was naturally enough led to try the sedative effects of aqueous injection and bleeding. Moreover, from the time an animal becomes mad, he ceases to drink; while the pulmonary and cutaneous transpirations are in full force. Hence, he found the blood of rabid animals thick, and apparently without serum. Upon the whole, this experiment, though unsuccessful, holds out a ray of hope in this hitherto incurable affliction.—*Magendie's Journal of Physiology.*

It is announced in the *Journal de Medicine Pratique* of Berlin, that the *Belladonna* is a preventative against scarlet fever.—This fact was first noticed at Leipsic, but it has lately been confirmed by several experiments. *Lon. Med. Intel.*

Nitrous Acid used as a substitute for Blisters. Communicated to the Edinburgh Medical and Surgical Journal, by Dr. Kennedy, F. R. S. E.

Extract of a Report from Mr. Assistant Surgeon KILLETT, of the 3d Regiment Light Cavalry, to the Medical Board, Madras, dated Mhow, 4th November, 1821.

IN my report to the Board for the month of July last, I gave an account of the spasmodic cholera, as it came under my observation, during the short period it was prevalent at this place.

In that report, I recommended bleeding and blistering as the remedies chiefly to be relied on, considering the disease to be a spasmodic affection of the stomach and bowels, accompanied with inflammation, and quickly followed by a diminution of the powers of the brain; and I hinted that the actual cautery might be employed with advantage, as producing a more instantaneous counter-irritation, than the slow acting emplastrum lyttæ. Since writing the above mentioned report, I have been informed by Mr. Assistant Surgeon Powell, of the Bombay Detachment, now in camp, that he has used the nitric acid to produce a quick counter-irritation, and with the best success. Of forty-one cases which Mr. Powell treated in this way, six only died; and of nine cases treated by an officer commanding a detachment, without medical aid, one only died, and this a woman six or eight months gone with child. The great good effects of this sudden counter-irritation were strikingly illustrated in the case of a European, who received immediate relief in the burning sensation at the stomach on the acid blister being applied; and who, the next morning, being annoyed with spasms of the extremities, requested the same remedy might be applied: it was accordingly done, and so great was the relief obtained to one leg, that he cried for God's sake to apply it to the other, similarly affected.

Antoher striking instance was that of a Lascar, seized while cutting wood a koss from camp, and who, on being brought in, was supposed to be past recovery, his stools passing away involuntarily, pulse imperceptible, and extremities cold: the acid blister was applied to the stomach, and the patient got well.

Mr. Powell uses two parts of acid to one part of water, and with this mixture rubs the surface over the part affected, to such an extent as may be thought necessary; as soon as the patient

complains of pain, he neutralizes the acid, by washing the surface with a solution of salt of tartar; the cuticle can now be easily detached, and leaves the cutis raw, upon which he applies a common blister to keep up the irritation. He employs, besides, small doses of camphor and opium, frequently repeated, to allay the irritation at the stomach; this, with emollient enemata, forms his whole method of cure. I will conclude with saying, that the (forty-one) patients treated with the acid blister were all admitted in such a state, that no blood was attempted to be drawn.

Letter to S. Heward, Esq. Superintending Surgeon, Presidency, from William Scott, Surgeon, Madras.

In a letter to the Superintending Surgeon, dated 8th April last, I noticed some of the effects of the nitrous acid, used as a substitute for cantharides blister in cases of cholera.

I have now the honour to enclose some remarks on the more extended use of that application, which, should you think them worthy of notice, I will be thankful to you to forward to the Medical Board. With this remedy in our hospitals, it should no longer in urgent cases be observed in the journals, that the "blister did not succeed," or, "the blister was applied, but could not be kept in its place," for no circumstance can prevent the *application* of the acid, and its *action*, when applied, cannot possibly fail.

Saint Thomas's Mount, 9th July, 1819.

Remarks on the Use of Nitric Acid as a substitute for Blisters, by Mr. Assistant Surgeon Killett.

We hear much of the successful application of firing by the native practitioners; and it is common to hear a farrier say of a horse, "blister him, and if it do'nt do, fire him, which never fails." The cautery is an ancient remedy fallen into disuse, but which nevertheless appeared to possess peculiar virtues.

Though, admitting the fact, that firing was more efficacious than cantharides blisters, I had no defined notions in what this superiority lay, but I could not impute it merely to difference in the *degree* of action, for the blisters used with horses seem often more painful than firing.

The substitution of nitric acid for cantharides blisters in cholera has given me opportunities of making some observations

on its mode of action, which appear to me elucidatory of the subject.

Seeing the quickness of action of the acid in cases of cholera, and that it could be applied under any circumstances of frenzy or unruly conduct, I have been led to employ it in those cases of severe disorder in the stomach and bowels, consequent on excesive drinking, where the promptitude is of vital importance, and where common blisters are altogether useless and inapplicable: also in cases of acute and sudden pain from other causes, in hepatitis, and so forth; wherever the disease depends on spasms, or nervous irritation, the relief is *wonderfully sudden;* and when it is connected with inflammation, I think it is fully as certain, and more speedy, than after common blisters.

The pain, upon the whole, is represented as sharper than that caused by blisters, though some patients say not; but the chief point is that it reaches its acme in two minutes; it continues severe for three hours, and in three more altogether ceases. It is in this *quickness of action* that it resembles the actual cautery, and to this therefore I impute the greater efficacy of both, for, it is reasonable to conclude, that the effect will be as the intensity of the cause; we may compare it to the shock produced by the *sudden* affusion of cold water on the surface, which, under a different management, may be altogether avoided.

But the acid possesses other advantages. Whoever has felt the tedious progressive pain of a blister, the wearisomeness and irritation produced, and the agony of motion; the sickness and disgust of the dressing, and the after sickly smell, itchiness, &c. will be disposed almost to suffer any pain rather than submit to a repetition; it is also obvious, that all these circumstances must have their bad effects on the patient. But the action of the acid is essentially different; the application is over in a few seconds; the pain, though severe, is at least soon on the *decrease;* is not aggravated by motion, nor by friction; no dressing is required, and the patient is often free from all the trouble of his disorder before the cuticle is abraded.

I have not seen any occasion for the after use of cantharides. If the acid has been diluted with half its bulk of water, and applied lightly with a feather, the cuticle is stained of a straw

or sulphur colour; in three days it begins to pucker, with a little serum underneath; a slight red ring surrounds the parts, and the cuticle comes off on the 4th or 5th day, leaving the surface like a common blistered part, with a few deeper streaks, where the cutis vera has been touched. But if the acid has been used undiluted, or has been longer applied, the cuticle becomes of a deep brown; it does not rise or pucker, as the subjacent vessels necessary for throwing it off, appear to be destroyed; the red ring forming on the third day becomes deeper and broader, and a portion of the true skin, of the thickness of sheep's leather, begins to separate in six or seven days. The parts are rather tedious in healing; but this, taking it in all its bearings, is no great disadvantage.

As no serous discharge ensues, the acid cannot be substituted for blisters, in cases where *this* discharge is the motive of their application; neither, of course, can it be admissible when a continued rather than intense counter-irritation is thought to be indicated. But in all urgent and acute cases, and especially where the patient is unruly or restless, the acid appears to me to possess advantages sufficient to recommend its general adoption in practice.

Saint Thomas's Mount, 30th June, 1819.

ANATOMY.

Lusus Naturæ. By Dr. Sonderland.—It is the custom with French nurses to give an infant, immediately after its birth, a small quantity of sugar and water, with a view to facilitate the expulsion of the meconium. On performing this operation with the infant whose case is here detailed, the fluid was instantly thrown out through the mouth and nostril, and nearly suffocated him. The same occurrence took place again and again, so as to lead the medical attendants to think that there existed some organick defect, or imperfect formation of the parts. In this conjecture they proved to be correct. The infant lived eight days, and died of inanition, passing every day, —but each time in diminished quantities,—both urine and fæces. On inspection, it was found that the stomach adhered to the diaphragm, by means of cellular substance; that it had no cardiac opening; that there was not the slightest vestige of

an œsophagus; and that the pharynx terminated in a *cul de sac*. No other remarkable appearance offered itself with respect to the other viscera, except that the liver was found to have a much larger volume than usual.—*Lond. Med. Intel.*

M. Ameline, Professor of Anatomy at Caen, in Normandy, has invented an anatomic model, representing the human body of the size of nature. The first part contains the bones, which form the skeleton. 2d. The muscles, made of paper, softened, and shaped after nature, and covered with pieces of fine hemp, to imitate the fibres; the whole is painted the natural colour. 3d. To represent the veins, arteries, and nerves, fine threads, and cords of gut, are introduced, covered with coloured varnish. Lastly, real hair is fixed on, wherever it is necessary to be used. The model, on the whole, is a most ingenious invention for the elementary study of anatomy, and is so cleverly made, as to demonstrate to the student much more of the human structure, than could reasonably be conceived possible.—*Ib.*

Mr. White succeeded in demonstrating in the horse, by positive evidence, what hitherto has been believed on simple conjecture, namely, that the thyroid gland is a mucous gland, and that its excretory ducts open into the larynx. The termination of these excretory ducts, which were fully examined, thanks to a previous injection with ink, may be readily seen as minute papillary eminences, especially on the epiglottis and superior parts of the larynx. They are continued down over the rima glottidis into the trachea, especially at its posterior part, where the bronchial membrane is thrown off from the cartilages, and the intervening space is filled up with cellular membrane.

"These excretory ducts communicate with the cells in the substance of the thyroid gland, (or, more properly speaking, *glands;* for it is obviously constituted of two glands united together by a band of dense cellular texture. The division is very evident in several of the ape tribe, and in bats the two are completely separate;) and hence it is, as I shall presently show, that diseases of this gland often lead to troublesome disorders of the respiratory organs. The secretion of those glands sometimes becomes too abundant, and is also morbid in its

qualities, which, being poured into the larynx, produces irritation there, and not unfrequently ulceration, especially in the glottis; and hence the worst kinds of *roaring* arise.—*Ib.*

Dr. Tiedemann endeavours to demonstrate, that instead of the spinal marrow being a continuation or prolongation of the brain, it is the latter and the cerebrellum to boot, which proceed from the spinal marrow; alias, that the brain and cerebrellum are an *efflorescence* of the marrow in question.

What seems to prove the accuracy of the Doctor's doctrine, is the following series of facts:—

"1st. In the commencement of pregnancy, especially about the second month, the earliest period at which the brain can be rendered perceptible by the action of alcohol, this organ is very small in proportion to the spinal marrow. In fact it results from the prolongation upward and forward, of the two principal chords, the oliviary and pyramidal. All its superior part is open, or, more properly speaking, forms a broad gutter which at once comprehends the third ventricle, the aqueductus sylvii, the fourth ventricle, and calamus scriptorius. This gutter is uninterruptedly continuous with the canal which traverses the whole length of the marrow.

"2dly. The cerebellum evidently originates from the spinal marrow; from the lateral parts of which arises, on each side, a small flattened chord. These two, at first so distinct and separate that they may be readily parted without laceration, afterwards unite so as to form the roof of the fourth ventricle. Then only the brain, viewed from above, ceases to represent a gutter; and the laminæ and branches of the cerebellum are formed at a much later period.

"3dly. The mass which supports the tubercula quadrigemina equally shows itself in its origin, under the form of two small thin membranes, which arise from the oliviary chords of the spinal marrow, and which, when they cease to be distinct, represent a vault covering a large ventricle, whose successive contraction gives rise to the aqueductus sylvii.

"4thly. The pyramidal chords of the spinal marrow, which take a direction below upward, and from behind forward, after having produced two swellings, or ganglia, the optick thalami, and corpora striata, each terminate by a lamen, which bent

from before backward, and from the side towards the superior and internal part, forms the commencement of the hemisphere of the brain. These membranes and thin hemispheres are so small at the second month, that they scarcely cover the corpora striata. In proportion as they increase they extend backward, and cover, at the third month, the optick thalami; at the fourth, the tubercula quadrigemina; and, at the sixth or seventh, the cerebellum. The lateral ventricles result from their inversion.

"5thly. The medullary fibres of the pyramidal chords, previously to the formation of the tuber-anulare, are immediately continuous with those of the crura-cerebi; from whence the eye may readily trace them in the optick thalami, and corpora striata, and see them afterwards spreading and radiating in the hemispheres.

"6thly. The parietes of the hemispheres gradually increase in thickness in proportion as new strata of cerebral substance are deposited on their surface; and convolutions are not decidedly seen till towards the close of pregnancy."

We have been informed by a correspondent who has witnessed some of Sir W. Adams's dissections of the eye, that he has clearly demonstrated the tunica aranea to be in no degree concerned in retaining the chrystalline lens in the situ, as has hitherto been taught in our anatomical schools; but that it is so retained by a membrane of a very peculiar structure, respecting which, little, if any thing, was known in this country prior to Sir. W. Adams's demonstrations at the York Hospital, three years since.—*Ib.*

Dr. Jorg, a Prussian, has preserved mummies and anatomical preparations in perfection, for several years, with the empyreumatic oil from the distillation of wood, and with pyroligneous acid. Pieces of flesh already advanced in decay, smeared once with this preparation, soon became dry and sound.—*Ib.*

PHYSIOLOGY.

The injection of fluids into the trachea was tried by Dr. Goodwin, and after him by Autenreith and Schlaepfer,* but they took no notice of the absorption of the fluids thus inject-

* Dissertatio Inauguralis, sistens Experimenta de effectu liquidorum quorundam medicamentosorum ad vias aeriferas in corpus animale. Auctore Schlaepfer, Praes. Autensieth, Tubingæ, 1816.

ed into the lungs. The veterinary pupils at Lyons have also injected water into the lungs of horses, and have found that they can support a considerable quantity without inconvenience.

Professor Mayer read his Memoir at the meeting of the Helvetic Society, held at Zurich, and we extract our notice from the Bibliotheque Universelle of Geneva,† a periodical work of great merit.

I have been engaged for many years in experiments, which prove the absorption from the lungs. In 1812, I published some of them.‡ Since that time I have made 80 experiments more on the same subject; I performed analogous experiments on the absorption from the intestines, and I found that it is much less than from the lungs. I made these experiments on various animals, viz. on rabbits, dogs, cats, goats, hedge-hogs, &c. I performed them with different coloured fluids; with the infusion of turmeric, of rhubarb, of saffron, of indigo, of madder, &c. I frequently made use of a mixture of indigo, of saffron, and of water. Lastly, I employed solutions of the prussiate of potass, of nitre, of alum, of acetate of lead, muriate of iron, oxide of arsenic, oils, &c. &c.

The following are the summary results of these experiments:

1st. Animals support a considerable quantity of liquid injected into the lungs without experiencing mortal symptoms from them. Rabbits can support a dose of four ounces and a half of water in 24 hours. But these injections should be performed by an opening made in the trachea; for if we inject these fluids by the larynx, they excite the most severe symptoms of suffocation, and the animal soon sinks under it. The suspension of respiration during this irritation of the muscles of the larynx by the injection is the only cause of death.

2d. The symptoms of suffocation which arise from injections are not serious when we inject pure water; but they become so when we take thick fluids, for example oil, which obstructs the aërial passages; or some chemical solutions, which, destroying the parenchyme of the lungs, prevent the oxydation of the

† Bibliotheque Universelle, Sciences et Arts, Tome VII. p. 51. 8vo. Geneve, 1818.

‡ Dissertatio sistens, Experimenta quædam in Animalibus aqua Suffocatis Instituta, Tubing. 1812.

blood, and produce extravasations of blood, and inflammation in the lobes of the lungs.

3d. The fluids and solutions injected into the lungs are absorbed, more or less quickly, according to their nature, and their degree of concentration.

4th. This absorption is in general very great, but less in young and newly born animals than in adults.

5th. Absorption takes place by the pulmonary veins, for it has occurred in the space of three minutes; we find in the blood the fluids injected, before we perceive them in the chyle; we find them in the left auricle and ventricle of the heart, long before we can see the least trace of them in the right auricle. Lastly, absorption is carried on even although we tie the thoracick duct.

6th. Absorption is likewise performed by the lymphatick vessels, but more slowly.

7th. The veins of the stomach and intestines also absorb, but in much smaller quantities.

8th. We can demonstrate in the blood the existence of fluids absorbed by the veins. It is easy to discover there the prussiate of potass, the muriate of iron, arsenic, &c. We can trace the prussiate of potass, injected into the lungs, first in the arterial blood of the heart and arteries, then, if we continue the injection, in the venous blood. The sulphate or the muriate of iron, mixed with the blood, produces a green or blue precipitate.

9th. We find these fluids in abundance in the urine in the bladder, and in that in the kidneys. The prussiate of potass can be discovered in it seven minutes after the injection.

10th. The prussiate of potass is likewise deposited, and even in considerable quantity in the serum of the pericardium, of the pleura, of the peritonæum; in the synovia, under the skin, and in the milk.

11th. When we have injected prussiate of potass, we can discover this substance after some hours, not only in the fluids, but also in many of the solids. Several of these parts then became green or blue with the muriate of iron, viz. the cellular tissue under the skin, and in the whole body, the fat, the serous and fibrous membranes. We can tinge, in green and

in blue, by the solutions of iron, all the aponeuroses of the muscles, tendons, and the lateral and interior ligaments of articulations; for example, the circular ligament in the ileo femoral articulation; the crucial ligaments in the femoro-tibial articulation. We find the other parts of the fibrous system in the same state, namely, the dura-mater, the periosteum, and the pericardium, &c.

12th. The membranes of the arteries and veins, even the valves of the heart, can be entirely coloured blue. The mitral valve in the left ventricle alone becomes blue, when we do not continue the injection long enough.

13th. The parenchyme of the liver and spleen cannot be coloured blue, but sometimes the cellular tissue around their great vessels. The lungs, the heart, and the kidneys can be coloured blue.

14th. The secretory glands, namely, the salivary gland, the pancreas, the mammæ become blue.

15th. Neither the substance of the bones nor the marrow becomes blue.

16th. The substance of the muscles, and that of the nerves of the brain, and of the spinal marrow, do not change their colour, by soaking with the muriate of iron. These organs appear to exert a repulsive and exclusive force, on the contact of fluids foreign to their nutrition. We may conclude from this that the opinions of many physiologists, who say that poisons act mortally, when they are applied to parts of the nervous system, are not well founded, and are devoid of direct proofs.

17th. These experiments, which may throw some light on secretion, the reproduction and nourishment of bodies, have also taught me the passage of liquids from the mother to the fœtus. The experiments with the prussiate of potass succeeded very well. We can discover this substance in the water of the amnion, in that of the chorion, and of the umbilical vesicle, in the liquid of the stomach, in many solid parts of the fœtus, for example, in the kidneys, in the stomach, &c. as also in the placenta. When we lay a fœtus, to the mother of which we have given prussiate of potass, into a mixture of spirit of wine and muriate of iron, we perceive it become blue coloured.—Thus we acquire the most certain proof of the passage of fluid

from the mother to the fœtus, a proof that we have vainly sought for till now, in the history of physiology. The fluids taken into the blood of the mother are deposited in the tissue of the placenta, and are thence absorbed by the veins of the fœtus.—*Edin. Med. and Surg. Journal.*

A case of ventral gestation, in a cat, has been presented to the Society of Medicine, in which six fœtuses, of various dimensions, were found in different parts of the abdomen,—the uterus and its appendages remaining in their natural condition. —*Lond. Med. Intel.*

An account has been published by Dr. Mattaschka, of a woman who vomited at different times, and for the period of several months, a considerable number of small and large lizards, some alive, some dead, and others in a state of putrefaction.—The case is authenticated by various respectable names, and is given in the simplest style of a narrative, without any comments or explanation.*—*Ib.*

*A case of a very similar character to the above, occurred in the practice of a highly respectable Physician, near Baltimore, Md. a year or two since. We are not at liberty to mention his name, but hope that he will not continue to withhold the case, because of its extreme singularity.
Editor W. Q. R.

SURGERY.

Ribes *on Fistula in ano.*—Dr. Ribes informs us that more than twenty years ago, he announced his inattention of making a series of researches for the purpose of ascertaining the precise seat of the internal orifice of the fistula in ano. It seems that his attention was first drawn to the subject by finding that the venerable Sabatier was in the habit of using the canulated dilator and bistoury alone in his operations in this disease, contrary to the opinion of Dessault. In answer to the objections which were urged to him of the difficulty of operating in those cases where he could not find the internal orifice, or when the orifice was beyond the length of the finger, or when the intestine was denuded very high up, or when the fistula was of great extent, with these two instruments alone,—he replied, "that during forty years which he had dedicated to practical surgery, he had operated on a large number of fistulæ in ano, both in the Hospital of Invalids, and in Paris; that he had never found any difficulty in the operation; that he had always found the internal orifice to lie near the margin of the anus; that the canulated director had constantly answered his purpose; and that,

finally, this operation appeared to him to be so excellent and simple, that it would be difficult to invent a better.

"If," added he, "the internal orifice of the fistula were placed beyond the reach of the finger, a circumstance undoubtedly of extremely rare occurrence, for I have never yet met with one at this distance, it would be necessary to treat it with deference, and only employ gentle means, because we could not in such case perform an operation, but at the risk of subjecting the patient to deadly hæmorrhages.

"Sometimes, it is true," continued he, "that we cannot find the internal orifice of the fistula, nor can we get the director into the rectum by this opening, and it has been advised in this case, especially if the intestines be denuded, to pierce it at the highest possible distance, and to make an incision the whole length of the denudation; and also, that though the sinus remains on one of the sides of the incision, yet it is pretended that a cure will nevertheless take place.

"I am of opinion," said he, "that any person acting thus cannot obtain the desired success; because the disease must necessarily be subject to a relapse, seeing that the source of the moisture proceeding from the excrement, and gradually draining itself into the cells of the cellular membrane, is not obliterated. In such case, when the canula will not pass into the rectum by the internal orifice of the fistula, my advice is, that the operation be delayed a while. It will probably not be long before we arrive directly into the intestine, and then perform our operation with certainty of success."

Dr. Ribes informs us that he has devoted much time for the purpose of testing the truth of these doctrines, and as the result of his investigations he informs us that in ninety-nine cases in the hundred this disease is cured by piles.

"After having carefully examined and verified the state of the parts in the large number of dead bodies, which have fallen under my researches during the space of twenty-five years, I have met with seventy-five having had fistula in ano, but who had died of other diseases.

"I endeavored in the first place, to ascertain correctly, the precise situation where the internal orifice was seated; secondly, the course most ordinarily followed in the march of the fistulæ; and what were the parts through which they travelled.

"So far as respects the situation of the internal orifice, I have the most commonly found it a little above the place where the union is effected between the membrane lining the rectum and the external skin; sometimes also, a little higher up; but the opening is never seated above five or six lines high; at least in every one of the seventy-five dead subjects in which I have found fistula, I have never found one internal orifice to exceed this height, and in a certain number, it was at most only three or four lines up. The opening itself appeared as if ragged or torn; in the greater number it was soft, but hard and callous in a few.

"The idea so generally prevalent, that the internal orifice is very high up, has led the surgeon to direct the end of his probe too high, and the number of attempts to pass it forward, have corresponded with the supposed extent of the denudation. Moreover, the cellular texture of these parts is of so lax a structure, that it is easily, in most cases, penetrated by the stylet or probe; hence, the more easily these instruments pass upwards, the higher up we are disposed to think the internal orifice to be placed; whereas, in that case, it must be a chance indeed, if we find it."—*Quart. Jour. of Foreign Med. and Surg. Vol. II.*

M. Van Dam, surgeon at Alckmaar, performed the Cæsarean operation, in December last, on the wife of J. Hoek, aged thirty years, who had been seized two years and a half before with abour pains at the full term of her pregnancy, when, after many ineffectual efforts, the uterine contractions ceased, and she no longer felt the movements of the child. From that moment the patient experienced more or less pain in the uterine region; which at last increased to such a degree that her life was considered to be in danger, unless immediately relieved. It was under these circumstances that the operation was performed, by which the skeleton of a child was removed from within the womb, the mother recovering in a short time afterwards.—*Lond. Med. Intel.*

Professor Walker, in a memoir on bronchocele, has proposed to cure this disease by means of ligatures applied to the superior thyroideal arteries. The Professor contends for the existence of four distinct species of bronchocele, namely, the *inflam-*

matory, the *aneurismatick*, the *lymphatick*, and the *scirrhous*. In the two latter cases, he admits that the burnt sponge, the seton, or the caustick may be of use; but he asserts that they are absolutely useless in goitres dependent on inflammatory action, or the aneurismatical dilatation of the thyroideal vessels.—*Ib.*

CHEMISTRY.

M. Brandes has given the name of *Daturium* to a substance supposed to be an alkali obtained by him from the seeds of the *Daturium Stramonium*. It is combined in the seeds with malic acid, and is separated in the usual manner. In water and in cold alcohol it is nearly insoluble; but it is soluble in hot alcohol, from which it precipitates in flocculi on cooling. It crystallizes with difficulty in quadrangular needles. It forms neutral salts with acids, but requires to be added in greater quantity. Its sulphate is crystallizable, soluble in water, efflorescent, and decomposed by fixed alkalies; the muriate forms square plates easily soluble in water: the nitrate is crystalline and soluble: the acetate deliquescent. It acts on iodine in the manner of other alkalies, but freely.—*Ib.*

The name of *Atropia* is given to an alkali, found by M. Brandes in the *Belladonna Atropia*, which owes its peculiar properties to this substance. It is white, shining, crystallizes in long needles, insipid, and little soluble in water or in alcohol; forms regular salts with the acids, and neutralizes a considerable quantity of them. The sulphate of *Atropia* contains

Atropia - - - -	38.93
Sulphurick acid -	36.52
Water - - - -	24.55
	100.00

When mixed with potash and raised to a red heat, if mingled with muriate of iron it produces a brilliant red colour.—*Ib.*

Hyoscyama is extracted from the *Hyoscyamus niger*, and is not easily altered even by a red heat. It crystallizes in long prisms, and forms very characteristick salts when saturated with sulphurick or with nitrick acid.

Great caution is required in examining the constituent alkaline principles of narcotick plants, as their poisonous properties reside concentrated in the alkaline substance. The vapour is very injurious to the eyes, and the most minute fragment placed on the tongue is highly dangerous.—*Ib.*

A new alkaline body, possessing singular properties, has been announced to the world by the younger Brugnatelli, who has called it *apyre*, from its prominent faculty of resisting the action of fire. It combines readily with the acids, particularly with sulphurick acid, with which it forms a neutral sulphate, concrete and white. It also unites, with considerable energy, with iodines and phosphorus. Its acid solutions give a blue precipitate, by means of prussiate of potash.—*Ib.*

A speedy and simple method of procuring ice has been proposed by M. Grothus, which consists in pouring, very gently, a given quantity of æther over an equal quantity of water contained in a metal vase, so as not to mix the two liquids. If the vase be placed under the receiver of the air pump, and the air pumped out, the æther will first enter into ebullition, and be totally evaporated in less than a minute afterwards, while the water is converted into ice. The experiment was performed under the temperature of 16° R. of Reaumur.—*Ib.*

We learn that a bed of Gypsum of considerable extent has been discovered in the vicinity of Sandusky Bay, in the state of Ohio. As yet, we have not been able to learn the particulars; but we hope to present our readers with a satisfactory account of it in our next number.

TO CORRESPONDENTS.

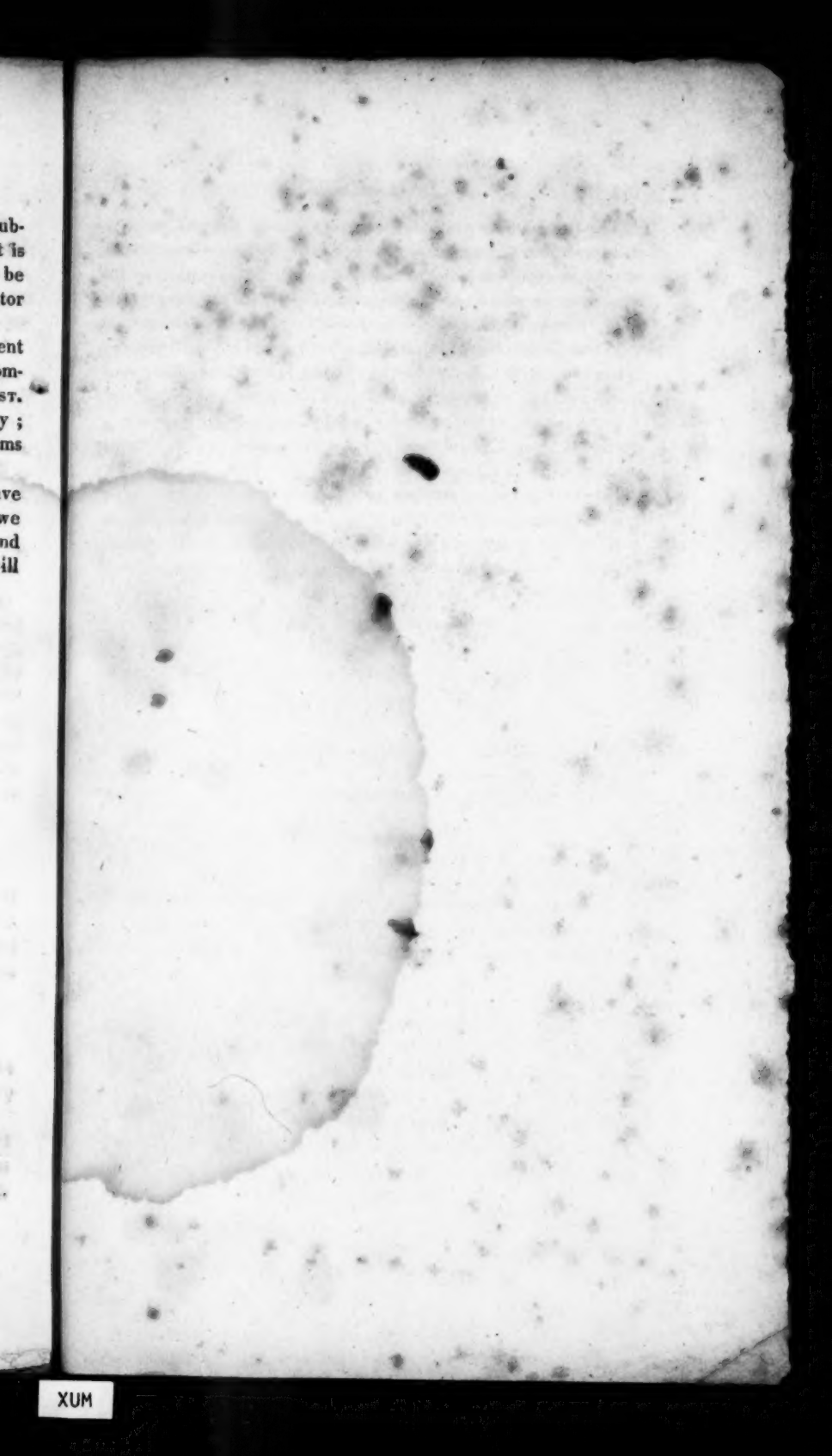
We return our thanks to Dr. Luckey for his interesting case, and shall be happy again to receive from him communications on professional subjects.

Gentlemen engaged in pursuit of natural science, and professional men, who are desirous of contributing to the Reporter, are requested to forward their papers to the publisher as soon after the appearance of each number as possible.

The first number of *The Western Quarterly Reporter*, is published without having been preceeded by a Prospectus. It is offered as a specimen of the manner in which the work is to be executed, as well as of the principles by which the Conductor of it, is to be governed.

In the Second Number, among other topicks we shall present our readers with a Memoir on the River Ohio, being the commencement of a series of Memoirs on The Rivers of the West. A paper on an interesting portion of Comparative Anatomy; communications from several physicians, on some peculiar forms of disease. &c. &c.

Previous to the publication of our second number, we have reason to expect several European Journals, from which we shall present to our readers the improvements in Medicine and Surgery, and the discoveries in Science, quite as soon as will be done by any other American Journal.



THE REPORTER will be regularly issued every quarter.—Communications relative to business, or articles for publication, are to be addressed, POST PAID, to the *Publisher*. The price of a number will be 62 1-2 cents, payable on delivery. Persons wishing to subscribe for the work, may have the numbers forwarded by mail or otherwise, on the receipt of a half year's subscription, IN ADVANCE, by the publisher.

JOHN P. FOOTE,

No. 14, Lower Market-street,

HAS ON HAND AN ASSORTMENT OF

MEDICAL BOOKS,

To which frequent additions will be made. His stock of Classical and Miscellaneous Books will shortly be increased by the addition of a number of new and valuable works.

SUBSCRIPTIONS WILL BE RECEIVED FOR THE FOLLOWING PERIODICAL WORKS:

Silliman's American Journal of Science and Arts,

Blackwood's Edinburgh Magazine,

The Ohio Miscellaneous Museum, published at Lebanon,

The Masonic Miscellany and Ladies' Literary Magazine, published at Lexington, by W. Gibbes Hunt.

XUM

THE

Western
QUARTERLY REPORTER
OF

Medical, Surgical, and Natural Science.

No. II.

ARTICLE I.

MEDICAL QUARRELS.

THAT those who by their office are constituted the guardians of the publick health, and by their necessary intimacy with our domestick circles, have a powerful influence over publick sentiment, are remarkable for want of harmony with their professional bretheren, is a fact more reproachful because of its notoriety, and deeply to be regretted as it weakens the confidence of society in the profession itself. To examine the state of things which may serve to cause or continue an evil of such magnitude, and to analyse the results produced by its action, is by no means as easy to effect, as it might prove beneficial, if correctly performed. We are so fallible, and so readily deduce our conclusions from slight circumstances, that our best works are but imperfect, even when examining substances. How much more probable is it, that we shall not succeed in developing the truth, when we attempt to decide on the springs of human action, which we see so partially, and seldom without being prejudiced one way or the other. Still, in the belief that even an im-

perfect effort may be useful, by awaking the attention of better judges to the subject, and under the conviction that the interests of society may be really served thereby, we shall attempt an investigation, which has, at least, a foundation in feelings of benevolence to all parties concerned.

If we appear to touch some points connected with our theme in fearless severity, if we strike in a manner having a semblance of rudeness, we must offer a professional excuse; it is, that we may reach the sound parts, and arrest the progress of the malady. In many particulars the world is *too polite*. By this we mean that names are frequently given to things or acts, which conceal rather than disclose the real state of the case. We shrink from the scrutiny of some events because we are forced by it to look in upon our own bosoms; to drag from their lurking places some cherished follies or prejudices of our own, and to acknowledge that in spite of our seeming excellence, we partake in no slight degree of the same spirit with those who are accused of want of generosity, of ignorance or of crime.*

In the other professions, the road to wealth or fame is generally open to the exertion of the best talents or the most persevering industry. This results from the manner in which these talents are displayed before the world, and the greater degree of ability mankind in general have of deciding on their true value. In the other professions, harmony is insured to a certain extent by the nature of the pursuit in which the members are engaged. They are in the pulpit, employed in teaching the necessity of peace and concord, and here the door is at once closed against the entrance of dissension. At the bar, the exertions of the members are made openly before the people, and those against whom charges are made, are present to hear and answer them by their counsel. The jurist looks forward and perceives that those who are present to judge of his conduct, are the persons on whom he may have to depend hereafter for patronage, and he of necessity desires to stand well in their estimation.

In addition to these circumstances, the parties are all related to society in a different manner. The Divine is in general placed in a situation that lifts him above the necessity of striving

* "Nemo mehercle! in sese descendere tentat; nemo;
Sed præcedenti spectat in mantica tergo." *Pers. Sat.*

against competitors. The duty he performs, if discharged with a share of zeal, or with that unction which is the result of proper feelings, ranks him deservedly high, without interfering with the claims of another of equal merit. If not possessed of any extraordinary talent, or gift of speech, a steady and correct occupancy of his place, a good example and gentleness of manners, will insure him that respect which turns away all chance of injury in the esteem of society.

The Jurist of great industry and talent, may render himself so necessary to numerous individuals, as to atone by his professional skill for the grossest defects in moral character, or at least, to induce those whose interests are concerned, to employ, although they would not associate with him. Hence in these professions the feelings are not elicited which cause so much trouble in the Medical world. The business too, which the Lawyer is to perform, relates most generally to matters having but a remote connection with domestick peace, and therefore, he is seldom influenced in reputation, by domestick interference.

Far different is the situation of the Physician. As he is called on to save the lives of those who are endeared by every tie, to their friends; these friends, by their very solicitude, often bring him into difficulties. He must listen to their suggestions, even when contrary to his own judgment—he often suffers them to displace his prescriptions by their own—he must frequently have his feelings mortified and his knowledge undervalued—must submit to be directed by the capricious fancy of the inexperienced and ignorant nurse—because if he bears not all these, or more, he will be discharged, and his place filled by one who will make up in flattery and cunning for all his defects in knowledge. Humbling as this picture is, we call on those to deny it, that are able to do so, and if any such are to be found, we congratulate them heartily on their good fortune.

If the physician attempts to discharge the duties of his profession conscientiously, he will meet with innumerable difficulties. Generally speaking, medicine is not necessary in twelve cases out of twenty, as the diseases to which we are usually subject, are in this proportion caused by our improprieties in eating or drinking, and to be remedied by attention to diet and exercise. Yet that physician loses his employment who does not avoid, as much as possible, all reference to the true source

of the malady, and humour the wishes of the patient by giving him medicine, when he ought to direct him to shun it. Even when disease is not caused by such irregularities, and is to be put to flight by abstinence and exercise alone, the Physician recommending them, incurs a considerable danger of losing the good opinion of his patient if he is not set aside to make room for another. These follies in patients, result from erroneous notions relative to the virtues of medicine and the office of the Physician. They suppose, that whatever injury may be done to the system, the Physician has some medicine which can be directly applied, and by its proper virtue can directly repair the breach. They consider the Physician as they do a maker of clocks, who can supply the place of a damaged wheel by a new one, and thus render the instrument as efficient as before. Instead of this there is no one medicine which acts on the human constitution otherwise than indirectly, almost universally operating on the general system before it reaches a particular part, and changing the general actions before it affects individual functions. The Physician, instead of being able to *renew*, is totally unable even to *repair* an injured organ. He is without capacity to do *any thing* except remove noxious agents, and that in a limited sense, thus permitting NATURE to resume her governance, and furnishing such materials as the powers of the animal economy may employ to most advantage. Wherever the Physician presumes to more power than this, he is either fool or knave, as none but the former could be ignorant of the fact, and none but the latter would advance such pretensions.

Let us next inquire into the manner in which the practitioners of medicine usually acquire business. They either gradually succeed to the business of a preceptor, are introduced slowly by friends and relatives, or acquire sudden reputation by some fortunate accident. In the first case, they may be like the heir to an estate, deficient in every qualification, but as no one disputes the title, and they go through all expected forms, they remain in undisturbed possession. In the second instance, they are generally obliged to make some exertions and to encounter some opposition, as mere recommendations and good will cannot advance them beyond a certain degree. In the third case, unless the individual be utterly deficient in talent and address, he is more certainly in the way to fortune

than either of the others. If, for instance, he chances to be called to a patient that is supposed to be in the very jaws of death, and he gives at random some insignificant medicine the moment before the patient begins to recover, he assumes the credit of having wrought this change, and is immediately looked upon as almost infallible, by the great number of those who are too little acquainted with the nature of such circumstances to judge for themselves; or if they were, might be too indolent to think of correcting the errours of others.

In human affairs, success *seems* to justify every thing. If a Physician have often experienced good fortune, or if during a long course of business he may have, as frequently occurs, few cases of real difficulty, not only do his superficial observers believe him possessed of extraordinary skill, but the unfortunate man is often vain enough, to give credit to it himself. Yet the vainest of such men who will condescend to examine all the cases he has prescribed for, will hardly venture to say, that of one hundred who were cured, twenty individuals owe their recovery to HIS SKILL.

The one least likely to succeed, is the man who listens much to the suggestions of conscience. While he is devoting himself to his studies as a duty he owes to society, he is acquiring habits of thinking poorly suited to forward him on the road of popularity. He who is in the daily practice of examining fearlessly the opinions of the most renowned authors, acquires an independence of spirit that makes conversational errours and prejudices too disagreeable to be tolerated in silence, and no man can exclude himself more effectually from popular favour than by suffering any one to *feel* his superiority in any respect. In addition to these obstacles, he is also too apt to neglect such *arts* as cringing assentation, and servile attempts to win patronage, or too conscious of the unworthiness of such a trick, as openly to praise or rather *puff*, his own superior talents and qualifications. He need expect employment but from *very few*, or perhaps be called on in cases where he cannot be dispensed with.

Let us now enter particularly upon the consideration of the manner in which the feelings of the members of the profession are embittered against each other. We have before adverted to the fact, that the female sex, from their peculiar situations, are extremely influential in establishing the opinion of society

as to professional merit. Men have too much occupation in their own concerns to examine minutely, and too little of such information as would qualify them to judge of professional superiority. The ladies are equally deficient in the latter qualification, but their opinions are mostly formed from collateral circumstances. One man has an agreeable exterior and an easy and cheerful manner of conversing. He may be but of middle rank in the profession, but he is certainly more acceptable than one, who, whatever be his talents and acquirements, has not these gifts of pleasing. Another has been very successful, perhaps by accident, and he is resorted to until he really acquires superior skill from much experience, or gradually attains a sort of prescriptive right to the best business.

Those who are not as successful, or who cannot commend themselves by their address, are of necessity more or less mortified. All men are vain. Professional men extravagantly so. He whose vanity is mortified feels either a strong disgust against the cause, or the instrument of his supposed humiliation. As it is not possible to shew it towards the cause, or society, the rival, who is the instrument, must feel it. Therefore coolness of manner towards him; pointed neglect or inattention; sneering when his name is mentioned, and a thousand petty actions expressive of such feelings, are performed. This reaches the ears of the rival. If he be a man of good feelings, he pities and is silent. If he be a man of sound policy, though he despises, he is still silent. Unfortunately, the irritated feelings of the injured are too often suffered to take the sway from the judgment, and he retaliates in some way or other, to the hurt of the individuals concerned and the profession at large.

Now the folly of this is evident on a very little reflection. It is a great mistake that the success of one is a detraction from the merits, or an humiliation of another. Truly, it may be owing to circumstances of no importance, or of great moment. If the former be the case, and a man is raised merely by accident, without talent to support him, he will fall again to his own level. If the circumstance is important, and the fortunate person be possesed of talents, adequate to the responsibilities he assumes, why should his neighbour feel disgust against him? Should he not rather labour the more to render himself fit to supply the place, left by him whose talents cannot

support him, or to transcend the man who is in possession of all the requisites of intellect and education?

The fact is not to be denied, that the injury is often begun by the successful party. Nothing is more apt to render weak men insolent than prosperity. Having succeeded to a certain extent, they forget to determine how much of their success is owing to contingencies, and how small is the portion of merit due to themselves. They are not willing to treat with respect those whose good fortune equals not their own; and by assumptions of superiority, or indifference of manner, cause the feelings of many to be turned against them, that a proper and conciliatory treatment would have inspired with warm friendship.

Another cause why physicians are more liable to dissension, is, that they never can forget their professional rivalry when they meet in general society. Equally aware that society is likely to be influenced for, or against them by circumstances having little or no connexion with the profession, each seems to be jealously on guard least the other should make too favourable an impression. This renders their manners mutually stiff and restrained, and often causes a display of satire. Thus the foundation may be laid; coolness, neglect, contempt, reproach, insinuation, slander and calumny, augment the grievance. The profession is abused in the persons of its members, and society is injured by the loss of that reliance on, and respect for the art which makes it most excellently useful. Instead of the manner above alluded to, the *profession* or its technicals, should never be carried into society. The physician should be relinquished for the man of letters and the gentleman; drugs, instruments, diseases, and all the conversation they induce, should be deferred to meetings of business, or only spoken of where they are in requisition.

Disparity of education is often a painful source of dissension, as well as disparity in point of talent or success. A man of good education has resources out of the reach of him who has little or none; however willing he may be to stifle his pretensions to superiority, they must often be felt: if they are *felt*, the offence is sufficient cause for hostility.—This is not merely confined to medicine; it is true in relation to all mankind, and is felt in every rank of life. The

remedy is to be found only in proper education, bestowed on talents of the necessary strength and value.

In our first number* we adverted to the folly of parents, in attempting to make physicians of children, neither qualified by nature, nor education. We are not surprised that the profession should be perpetually vexed by strife and animosity, when we call to mind, how great is the multitude that have assumed the robe of Hippocrates, without any talent to enable them decently to sustain it. Society are perpetually reminding us of the follies and ignorance of the profession, and justly, from this cause: we are all aware that many decent ploughmen and carpenters have been spoiled from the creation of doctors. Yet we shall never be much better off, unless society will investigate the matter properly; and shut out from their confidence, those who have nothing but sheer impudence to support their titles.

Society is in fact responsible to a vast amount, for the sins of the profession. Two physicians have disagreed—a patient is in great extremity—the attending physician refuses to consult with another, because they do not speak together. The family dislike to offend their doctor; the sick man may die for want of some hint as to the treatment, which might have been derived, from the very one who was refused admittance through professional hostility. Instead of this, every practitioner refusing to consult with another who was acknowledged as a physician and a respectable man in society, should be *at once discharged*, as unfit to be confided in.—What have his miserable broils and jealousies to do in the case? What right has he to think of the momentary uneasiness *he may* feel, when the life of a beloved and valued member of a family, is in imminent peril? Men who dislike each other, some say *cannot* agree. It is untrue. They *will not*. If they have been regularly educated, do not they draw their professional actions from the same general principles of knowledge? In a consultation, are not their conclusions drawn from the same facts? How dare they then to suffer their private and personal bickerings to stand between them, and the discharge of their duties to their afflicted fellow creatures and their God? Can we

*Page 10.

think of any situation more direful, than that of the wretch whose conscience accuses him of blood-guiltiness, for permitting his animosities to exclude the aid of an undoubtedly skillful professional brother? There have been—there be still, such men. The blame will to a considerable extent fall upon society, if it is longer permitted. They should not only turn such men out; but they should be trampled down. Anger, and jealousy and envy are frailties to which our nature is subject, and may be pardoned, at least, by Heaven. But that malignity which would suffer the life of a father or a mother, husband or wife, parent or child, to perish, sooner than bate a jot of its blackness and bitterness, is too detestable to be allowed any exculpation—any forgiveness, unless relinquished and atoned for.

THE OBJECT OF THESE REVIEWS SHALL BE TO SUBSERVE THE GREAT CAUSE OF TRUTH AND KNOWLEDGE—NOT TO SHEW HOW LEARNEDLY FAULT MAY BE FOUND. IF A WORK IS GOOD ENOUGH FOR PRAISE, OR BAD ENOUGH FOR BLAME, WHAT IS THOUGHT TO BE THE DUE PORTION OF EITHER, SHALL BE AWARDED WITH AS MUCH IMPARTIALITY AS POSSIBLE, AND UNINFLUENCED BY ANY WISH BUT THAT OF DOING GOOD.

Preface to the W. Q. R.

ARTICLE II.

NOSOLOGY.

Nosologia Methodica, Classium et Generum et Specierum et Varietatum series morborum exhibens. Auctore JOANNE B. DAVIDSON, A. M. M. D. Prof. etc. in Acad. Ter. Marianæ.—Ed. 2da Baltimoriensis. 8vo. 1813. pp 109.

A Physiological System of Nosology, with a corrected and simplified Nomenclature; by JOHN MASON GOOD, F. R. S. &c. London, 1817, 8vo pp 556.

A Practical System of Nosology; to which is prefixed a synopsis of the systems of Sauvages, Linnæus, Vogel, Sagar, Macbride, Cullen, Darwin, Crichton, Pinel, Parr, Swediaur, Young and Good, with references to the best authors on each disease; by DAVID HOSACK, M. D. F. R. S. L. and E. &c. &c. New-York, 1821, 8vo. 2d ed. pp 386.

THE science of Nosology has been gradually ascending to its proper station, since the time of Sauvages, in despite of the furious attacks made upon it by the disciples and disputants of BROWN's faction, and the ignorant and indolent of all parties. While such as these have been flattering one another, and pro-

nouncing in rash triumph "et delenda et damnanda," some of the most excellent medical philosophers and scholars have been occupied in arraying their forces in such a way for its defence as to leave these opponents nothing but empty threats and idle boastings, or the harmless repetition of objections which have been so often refuted as to be no longer regarded when heard.

To Cullen we are chiefly indebted for the subsequent improvements in this extensive field. The labours of Sauvages were truly immense, and his works will long continue to be a treasury capable of richly repaying the labours of the student in approaching them. But the very extent to which he has carried his investigations would have interfered with the progress of his favourite study, had it been suffered to remain in its original dress. By the genius and industry of Cullen, it was reduced to simplicity and beauty, and his additions and alterations were such as to make the science almost exclusively his own.

Still, it was utterly impossible that any one person, more especially one who had various publick and private duties to discharge, should be capable of producing a system entirely unobjectionable. It was the case with Dr. Cullen, and must be so with the efforts of all other men. His work served but as one substantial step for ascending in improvement, to which many others must be added, before the student can begin to draw near to the termination of his difficulties. Cullen was a philosopher in the true sense of the term, and never entertained a thought that his nosological labours could not be improved on. In this he evinced his decided superiority over the rash men who have succeeded him, and who have pronounced a satire on their own ignorance and folly, when they pretend in a few hot expressions to set aside a science which has its verity and existence fixed in the immutable laws of nature.

By many persons objections of much weight were made to parts of the system of Dr. Cullen. These were increased by numerous additions from the different writers and teachers who have flourished since his time. The mass of these objections were brought forward with a view to the improvement of this important science, if those offered by the Brownists be excepted. Some of these had gone so far as to assert that nosology was a chimera, which existed only in the imagination, and laying

hold of the errors which were created by the systematick writers, and were totally disconnected with the truth or falsehood of Nosology, they launched against this science, sweeping sentences of obliteration and contempt.

To remove such sentences, to aid in the extension of professional knowledge, and to set aside the imperative dicta of the most famous of the Cis-atlantick BROWNISTS, the system of Davidge was prepared.* This differs in its classes from Dr. Cullen only by changing the name of the fourth class from locales to vitia. In the genera and species the improvements are numerous and excellent, not only in arrangement but in definition, as we shall presently point out. But what gave this system, at the time of its publication, a peculiar value and interest, were the admirable and unanswerable arguments offered for the science of nosology, in the preliminary discourse on pathology. This system has hitherto been much slighted in this country. It emanated from a professor in one university, at a time when the contrary doctrines were most in fashion, in another of high standing, and when it would have been impolitick even to have noted the errors in a work from a rival institution. This jealous spirit has been an impediment to the diffusion of numbers of excellent and useful things. The opponents to scientifick nosology have proved, however, to be but men of straw, easily overturned and speedily disappearing after being prostrated, from their slightness of texture.

The systems of Sauvages, Cullen and Davidge, are founded on the DISTINCTIVE SYMPTOMS or pathognomonick signs of diseases. They are arranged according to the apparent relation which each set of symptoms bear to the other, and the CHARACTER of the class is taken from the *general features* peculiar to the whole of its members. This *character* is a pure abstraction, having no other existence than that which is thus given to it for the purpose of facilitating the arrangement and study of the integrant parts of the science. Hence there is no separation of diseases into such as affect peculiar functions, and no particular attention bestowed on any thing but the symptoms which belong exclusively to one disease or another.

The system of Good has many peculiarities, the first of which is that it is founded on the physiology of the body, and the second most important improvement consists in his bold

and well sustained effort to reduce our nomenclature to something like fixedness and regularity. To effect this, it was necessary to begin at the root of the evil, in order to correct it. To analyze the efforts of his predecessors, and to point out the ills flowing from the vicious and indefinite use of terms, occupies the first part of his excellent introductory disquisition. After this inquiry, he turns to the subject of the fitness of the different languages for the purpose of forming an improved nomenclature, and confines himself entirely to the Greek and Latin, not only on account of their stability and copiousness, but for the sake of uniformity, hitherto so miserably deficient, in our terms. To understand this more clearly, it may be well to give his own words.

"What has been done for Chemistry, Botany, and Natural History, ought long ago to have been done for medicine; whose vocabulary is a jumble of terms derived from almost every system whether dead or living, founded upon no common principle, and equally destitute of precision and simplicity. It consists of Hebrew and Arabick terms; Greek and Latin; French, Italian, Spanish, German, English, and even Indian, African and Mexican; often barbarously and illegitimately compounded, doubtful in derivation, cacophonous to the ear, and, for want of determinate signification, formed as one would think, rather for the purpose of suppressing ideas than of communicating them. It is not necessary to detail the cause of this confusion. It has manifestly arisen in a very considerable degree from those political and geographical changes that have marked the history of medicine in its different epochs, in conjunction with that succession of theories, which very nearly from the time of Hippocrates have been perpetually unfolding to the world, almost every one of which if characterised by nothing else, has at least taken care to mark its existence by a new coinage of words.

"The sources then of the impurity and perplexity of medical language may be contemplated under the following heads: Firstly, an intermixture of different tongues that have no family or dialectick union. Secondly, the want of a common principle to regulate the origin or appropriation of terms. Thirdly, the introduction of useless synonyms, or the adoption of different writers to express the same notion. Fourthly, imprecision

in the use of the same terms. Fifthly, an unnecessary coinage of new terms upon a coinage of new systems. p. 39, 40.

"Had these terms been altogether arbitrary, and had an arbitrary coinage of terms been the principle of medical Technology, there would, perhaps, have been no great objection to the generality of them. Many of them are sufficiently euphonous, and each could in such case have excited only a single idea. But as this is not the fact, the classical student can never commit them to memory, without disgust at so barbarous an association; nor the unclassical student, without having a secret and commendable thirst to become acquainted with their radical meaning, which he can only thoroughly accomplish by sacrificing his time to a knowledge of the different languages from which they are severally deduced." p. 49.

It would be extending these quotations too far to follow this writer throughout his proofs and exemplifications. We must refer our readers to his work, where we are assured they will be satisfied by the statements and reasonings of the author. Of the manner in which he attempts the improvements of our nomenclature, we shall shew by adducing the general rules by which he guides himself. "Firstly, a strict adherence to Greek and Latin terms alone. Secondly, a use of as few technical terms as possible, and consequently a forbearance from all synonyms. Thirdly, a simplification of terms, as far as it can be done without violence or affectation both in their radical structure and composition. Fourthly, an individuality and precision of sense in their respective use." p. 51.

The classes of Good's nosology are seven: the first of which is Cœliaca, diseases of the digestive function. The second, Pneumatica, diseases of the respiratory function. Third, Hæmatica, diseases of the sanguineous function. Fourth, Neurotica, diseases of the nervous function. Fifth, Genetica, diseases of the sexual function. Sixth, Eccritica, diseases of the excernent function. Seventh, Tychica, fortuitous lesions or deformities.

As is to be expected from the plan which he marks out for himself, there is a great deal of alteration proposed in the nomenclature of diseases. This we are induced to commend for several reasons. He uniformly aims at expressions which have no connection with hypothesis, and which give as clear

an idea of the peculiar character of the disease as possible. Every physician can call to mind numerous instances where the technical term is either an expression of one particular symptom, as in HYDROPHOBIA, or else of some peculiar theory. The use of two languages only, whence to derive his terms and the uniformity of their endings according to the analogy of the latin language, will secure to this nomenclature an eventual because merited superiority, over its predecessors. At present, we believe that this nosology is used as a text book by Professors in the universities of Pennsylvania and Kentucky, in their lectures on the practice of medicine. The technicals proposed, may not be in every instance admissible, or many of them are susceptible of improvement, but they certainly should be received until cause is shewn for their rejection. This introduction can never be so fairly given as by lecturers on the practice of medicine, who have it in their power to do much good by using terms which have some definite ideas attached to them, and which have no connection with vague and futile opinions.

Dr. Good has been at considerable trouble to give the synonyms of the diseases in most of the languages of Europe, as well as in a variety of oriental tongues. This, to be sure, has enlarged his book, yet, in a work whose great aim is a reformation of the nomenclature, it is scarcely objectionable. We cannot avoid remarking, that in order to make the oriental synonyms of use, he should in every instance have given the precise ideas attached to them by the authors, or at least to have referred us to the Lexicons used by him in his investigations. In the generality of instances, he gives us these oriental synonyms on his own authority, without mentioning author or Lexicon. This, we venture to suggest, is taking a liberty, especially in relation to the ARABICK language, which is not altogether warrantable, in one who is not a native.

The system proposed by Dr. Hosack, appears rather like a step backwards than forwards. We hold it to be a matter of absolute right, that when a philosopher propounds a doctrine, or writes a book on any particular subject, that he should attend to what has been done by his predecessors in the same. If improvements have been made by others which he does not choose to adopt, he is bound to give his reasons for not doing

so. He is called on to prove that there is an advantage in his own method over that he rejects, or else his mode should possess such superior excellence as to vindicate itself from the charge of presumption. To make a book merely for the sake of making a book, is a motive which can only be sufficient in the case of the "small fry" of literature. We are in the habit of supposing that grave professors who resort to the press, do so with a principal view to the benefit of mankind and the diffusion of knowledge.

This is not said from mere captiousness. This author is a gentleman of acknowledged talent and must also be of great industry, or he could never attend to as much as he does. But we speak with reference to the true interests of science. These demand some attention. Any man who makes a book having great connection with the state of Medical Literature, should be called on to defend his actions, when they are calculated to oppose the progress of its improvement. The objections made by J. M. Good relative to the barbarisms of our terminology are not easily to be repelled. If Dr. Hosack chose to retain them in his work, he should first have refuted the arguments advanced against them.

Dr. Hosack has gone back to the mode of classification which is drawn from the distinctive marks or pathognomonick signs. He makes eight classes: 1st Febres, 2d Phlegmasiæ, 3d Cutanei, 4th Profluvia, 5th Suppressiones, 6th Neuroses, 7th Cachexiæ, 8th Locales.

There would be less objection to this author's method, if there were any compensation to be found in the superior excellence of his definitions. We shall compare some of these with those of other systematicks, and see if such compensation may be derived from this source.

"*Fevers.*—Character. Languor, lassitude and other signs of debility or a cold fit having preceded; the pulse frequent; skin dry; tongue foul; many of the functions impaired; the strength of the limbs, especially, diminished." [*Cullen and Davidge.**

If we mistake not, the part of this definition peculiar to Dr. Davidge, is the "foul tongue," than which no sign is more expressive of the existence of a feverous condition.

* Prægressis languore lassitudine et aliis debilitatis signis vel horrore; pulsus *frequens; calor major; cutis arida; lingua sordida;* plures functiones læsæ, tribus præsertim artuum imminutis."

"*Fevers.*—Heat and number of the pulse prenaturally augmented; usually preceded by rigour and followed by perspiration; pains fixed or wandering; lassitude; debility of mind and voluntary muscles."—*J. M. Good.*

"*Fevers.*—Character. A disturbed state of the whole system usually manifesting itself by a sense of coldness and shivering—a disinclination to mental or bodily exertion—and for the most part succeeded by a frequent pulse, increased heat, and more or less derangement in all the functions both of body and mind."—*Hosack*, p. 181.

The first definition of the character of fever, whatever place it may occupy in a classification, is undoubtedly the best of these three. It is the *character* of the disease; an abstraction of the most peculiar and distinctive circumstances belonging to it, and as they are presented while the disease is operating.

The character given by Good, comprises the consequences as well as phenomena. The perspiration succeeding is not fever and does not take place during the operation of it, nor does it invariably follow its cessation. The rigour may or may not precede it, but the disturbed state of the pulse and the other signs, do in almost every instance present. Good has beyond doubt classed fevers most correctly, among Hæmatica, or disease of the sanguineous function. However the nervous system may be concerned in the production of the disease, it is by the sanguineous system that its peculiar action is made evident to us. This struck Dr. Rush so forcibly that he taught that fever was a peculiar disease of the sanguineous system, and exclusively belonging to the arteries.

The third "Character" cited from Dr. Hosack, is deficient in precision and point, using too many words and too much circumlocution, as well as being unnecessarily weakened by the introduction of that awkward expression "for the most part." The ENGLISH of *plerumque* is "most commonly" or "generally;" however often it may be translated as as done by Dr. H. it is not allowable in a science where perfect clearness of expression is so desirable.

It is a very unpleasant task to go through a work finding fault from the title page to the conclusion, and it is unfair to pronounce sweeping sentences of condemnation. Thus much we shall say, that Dr. H's. classification is not as good as it

ought to have been, with Parr, Young and Good in his hands.—His definitions are frequently *histories* of disease, instead of an abstraction of their *distinctive*, *pathognomonick* phenomena. In this the very object of Nosology is defeated, and the intention of classifying frustrated. It is the business of the Nosologist to make his classification so that it may be as correct and useful as possible, and aid the memory of the student.—Then the definitions should be made up of the peculiarities, the signs belonging to each disease and to no other, where it can be done; where this is impossible, it is to be approached as closely as circumstances will permit.

In nomenclature Dr. H. is very reprehensible. While he is proffering to the medical world a book written in an advanced state of scientifick and literary knowledge, he is guilty of retaining some of the oldest, and introducing some of the newest barbarisms. In testimony of this we find him continuing to use terms which have their derivations from two different languages, although better names have been proposed and founded on more correct principles. We find him making a Genus of yellow fever, under the name of *Pestis tropicus*, and concluding his definition with stating it to be "in a foul atmosphere contagious," when there has been within the last year most decisive proof of its domestick origin, and *non contagiousness*, even if the circumstance of "a foul atmosphere," would not bid defiance to our ascertaining whether the disease was caused by *contagion* or not.

Dr. Hosack has made his book of unnecessary size and price by the introduction of the numerous synopses of the nosologists. In addition to this source of augmentation, he has that of a long list of *systematick* and *monographick* writers on each disease, which proves that Dr. H. has an excellent library with or near him, and nothing more. If *utility* had been studied, the same space might have been more advantageously filled up by some mention of the different modes of practice proposed for the cure of the various diseases.

The "System of practical Nosology" has for its motto a sentence stating that "I shall follow no one author, but as I shall judge each to be most correct, in any part."* If we were al-

*"Auctorem neminem unum sequar; sed ut quemque verissimum in qua parte arbitrabor." *Plin. Hist. Nat. Lib. III.*

lowed to offer a motto, expressive of the manner in which the work is executed, it should be, "What I have done, I have done; why I did so, I choose to keep to myself." *

We should feel much gratification if the learned editor of the North American Review, could be induced to turn his attention to the examination of Good's Nosology, with an especial view to the subject of the nomenclature of Medicine. We do not know of any person better qualified for so arduous a task, or from whom an expression of well founded approbation would have more weight. It is not a subject on which we should like to enter extensively; first, because we had rather that it should be done by some one of greater abilities and qualifications; and secondly, such discussions suit not the size or scope of this journal. A few observations on some portions, are all we shall offer at present.

The name for small-pox at present is *variola*, which is said by Good to be derived from "the Latin *virus*, through the Spanish *viruola*, afterwards changed or corrupted to *variola*, in Italian *vajuolo*, in which the *u* is retained, as though *virus* was the radix." The name for chicken-pox is a diminutive, formed from the root "*varus*, a pimple," and is *varicella*.

The name of Measles is *Rubeola*, while that disease which bears the same resemblance to it, as varicella does to variola, is called in Good and Hosack *Urticaria* or Nettle Rash. An infinitely better term for this disease, was proposed in Davidge's Nosology, and formed on the same principle as the name used for chicken-pox: this name is *Rubecella*, and we hope to see it adopted in place of the other vague and uncertain term. Dr. Good has proposed the beautiful term *Rosalia*, for that barbarism "scarlatina," which, with multitudes of like character, Dr. Hosack still retains.

In relation to the term "*cataract*," we are sorry that some name expressive either of its seat, cause or appearance, has not been devised. The manner in which the term *cataract* has been introduced is by no means clear, nor is its claim to permanence in medical nomenclature well founded. The terms used by the Greek writers were indifferently "υποχύμα, ακοχύσις and υποχυσις." The radical of all which names is "Χυμος hu-

* "Quod feci, feci; quare, sat est mihi dignoscere."
Carbonarius de omnibus rebus, et quibusdam aliis. Lib. CL.

mor," and all have more meaning in themselves than cataract, as applied to the eye, though still indefinite. The Latin term for the disease, "*Suffusio*," is certainly more expressive than either of those mentioned, as it refers to the most uniform appearance caused in the crystaline lens, although it may be said that a similar appearance may be presented by disease affecting other parts of the eye. That the term "cataract was perhaps first employed by the Arabian writers," rests on the same authority with many of the wonderful stories related in Pliny.* We recollect some prosing on the "fine imagination" of the Arab doctors, relative to cataract, in a number of the Edinburgh Review, of 1815 or 16; but the "*imagination*" is of no account whatever in the science of Medicine. Cataract is usually derived from Καταῤῥασσω, which does not appear so clear to us, and which has certainly no relation to the manner in which this disease is caused, or in which it appears in ninety-nine cases out of a hundred. Καταῤῥασσω is rendered, "frango, rumpo, impetuose deturbo, erumpo, defluo."

Cataract has the same meaning in English as in Greek, and signifies "an abrupt and precipitous place in the bed of a river, over which the water rushes rather than flows." The true root of the term as used in medicine, we believe to be, ΡΑΙΩ, profligo, corrumpo, destruo, disperdo.

The subject of Nomenclature is not only very important in relation to Nosology, but to every department of medicine.—We have some of the most stupid blunders handed down from one writer to another, and the most troublesome consequences flowing from them.

In anatomy for instance, we are told that the bone terminating the spinal column, is called "os *sacrum*," because it was formerly offered in sacrifice, and hence called "sacred or holy." This fable is entirely the offspring of ignorance. The words "os sacrum" do not mean "holy or sacred" bone, but *great* bone; either because of its being made up of several pieces, or from being the base of the spinal column, or from the important organs placed in its immediate vicinity. The word Ιερος means *præstans*, *magnus*, as well as *sacer*. The word *sacer* is used in Latin for "great" as well as "holy." Arætæus speaking of the reason why Epilepsy was called "Ιερον νοσον" morbus Sacer ex-

* "Sic dicitur."

pressly states that it was called so, not because of its being a judgment from heaven, but because of its violence and distressing character, as the word *sacred* was used in the sense of *Great*. "Και ΙΕΡΟΣ γεν το ΜΕΓΑ·" [περι Ερμηνειας; βιβλ· α·] In like manner we have *Ignis Sacer* in Latin, and numerous instances may be selected from the Latin poets, as in this common quotation from Virgil—

"Quid non mortalia pectora cogis,
Auri SACRA fames"—

Homer speaking of the manner in which Patroclus, after thrusting his spear through the cheek of Thestor, draws him from his chariot—

—— As when a man
Seated on jutting rock, drags from the deep
With cord and shining hook, the MIGHTY fish.*

If we desire further proofs of the synonymous use of the terms *Holy* and *Great*, we may observe in the Hebrew language† there is this peculiar mode of expressing a superlative degree. The word *MALACH* signifies king, but to express a king of extreme power and grandeur, the word *YAH*, GOD, is prefixed to it; *Yah-Malach*, *GOD-KING*, or Great King. The English epithet GOD-LIKE, refers to the possession of more than human power or energy of mind, and very seldom indeed to superior sanctity.

In concluding this article, we shall remark, that the classification of Dr. GOOD, as it is founded on the Physiology of the human body, and aims at the introduction of a "corrected and simplified nomenclature," makes his, the best book of Nosology we have. That this system may be improved in many instances, by borrowing the graphick and condensed definitions of CULLEN as offered by Dr. DAVIDGE, will be acknowledged by any one who will make the proper examination. Those who will not be at this trouble, and such as feel disposed to find fault with and decry Nosology, because of the imperfections of systematick writers, will scarcely lose the opportunity of striking at "the system of Practical Nosology."

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*—"ως οτε τις φως,
Πετρῃ επι ωχροβλητι καθημενος ΙΕΡΟΝ ΙΧΘΥΝ
Εν ωοντοιο θυραζε λινω κ πνοπι χαλκω· " ΙΛΙΑΔ: Π.

"Veluti cum vir
Scopulo in prominenti sedens, SACRUM PISCEM
Ex ponto foras lino et splendido ære." CLARKIUS.

† "Perraro *Hebraisare* soleam, aut ut verius dicam sacram linguam in veneratione potius quam deliciis habeam." REVICZKIUS.

An Introduction to the Practice of Midwifery; by THOMAS DENMAN, M. D. &c. &c. From the last London edition, revised by the author, with notes and emendations by JOHN W. FRANCIS, M.D. &c. &c. New York, 1821. pp. 683.

THE work of Dr. Denman has long been known to the medical profession, and deservedly esteemed both for the excellence of its doctrines and the simple elegance of its style. It is one of the few books on this subject which can be read without disgust at the barbarous dissonance produced by the repetition of technical *phrases*, and though not perfect in philosophy, will no doubt be read with pleasure and profit, while multitudes of more recent authors slumber in the undisturbed dust of oblivion.

Next to the possession of a well written volume, stands the advantage of having it well printed. This has been peculiarly attended to by the present editor, Dr. Francis; and the execution of the whole work is such as would satisfy the most fastidious admirer of typographical neatness. The plates which accompany it are numerous and beautifully executed. In addition, they are plates which may be very useful to the student, because they are so correctly executed as to enable him to form accurate ideas of the connection existing between the fœtus and the mother. To the profession we have no doubt this edition of Denman will be an acceptable offering, as from no other single volume can they derive as much useful information, displayed with equal science and ease.

As the writings of Denman have been so long and so often before the publick, it is unnecessary to dwell at this time on these parts of his obstetrical doctrine which have been considered incorrect. We shall barely examine the notes added by the American Editor, in relation with the text on which he comments, to see how far he is entitled to our thanks for his manner of discharging this part of his office.

Dr. Denman says, (in chap. 1. § 1. p. 66,) "An anchylosis is not unfrequently formed between the sacrum and ossa innominata; and sometimes in consequenceof their separation an imperfect joint, which very much weakens that part and impairs the manner of walking for the remainder of life." Dr. Francis's note to which is, "No doubt can occur of the occasional occurrence of this impaired condition of the junction of the sacrum and ossa innominata; instances of anchylosis there are more frequent: specimens of this morbid formation are exhibit-

ed in the museum of Dr. Post, Prof. of Anat. in the University of New York."

In the 3d section, p. 77, Denman says, "instances have occurred, *though they are rare*, of women, who, after labours, have suffered much pain in the region of the sacrum, and have lost all power of moving their inferior extremities; and the inability has been imputed to some paralytick affection. They are said to be bedridden which describes the effect, though it does not explain the cause of their disease. As these patients have, after a confinement of several months, or even years, been generally restored to the use of their limbs, it is not unreasonable to think, that their infirmity was occasioned by a separation of the bones, which, at different periods after the accident, according to the degree of separation, had recovered their former connexion and strength." Dr. Francis comments on this section, thus: "The admission on the part of the author, that as a general principle there is a separation of the bones of the pelvis, or a disposition in them to separate at the latter period of pregnancy or at the time of labour, and that this change is often or generally produced, is *somewhat extraordinary*. True, we have the authority of the most eminent names for believing that the separation of the ossa ilia from the os sacrum, and of the ossa pubis from each other have repeatedly taken place during parturition." &c. &c. Yet Dr. Francis goes on immediately after to quote cases from the experience of his friends, confirming the opinion that "instances, *though they are rare, have occurred*," which is the amount of Denman's "admission." This is not the only note in which Dr. Francis has said a great deal too much and too little. Too much to effect his avowed object, and too little to compensate for the evil done by calling the attention from the text.

Denman says, at page 80, § iv. "When the connection of the bones of the pelvis has either been impaired or destroyed, it is probable, that a confirmation or reunion takes place by a restoration of the original mode: by a callus, as in the case of a fractured bone, or by anchylosis." On this Dr. Francis writes thus: "When the connection between the bones of the pelvis is impaired or destroyed, it must be either by a relaxed or diseased state of the ligaments: the same change may also be produced in the cartilages; their reunion can be effected

only by restoring the original formations, and not by callus. An anchylosis can only be by callus." In this case, the commentator is unjust and dogmatick. Dr. Denman has said all that *he* has said, almost in the same words: "reunion takes place by a restoration of the original mode: by a callus, as in the case of a fractured bone, or [in the technical phrase] by anchylosis." As to whether anchylosis is not a frequent mode of "*reunion*," we refer to the first note quoted from this commentator.

The majority of Dr. Francis's notes are better than those referred to, and contain much useful and interesting matter. Beyond doubt, many of them are needlessly long and swell the book too much. Where notes are made on errors that are obvious to the most ordinary capacity, there is but little credit done to the author, or respect paid the mind of the reader. It not only shews that the commentator can trifle, but that he thinks his reader fool enough to mistake this trifling for science. Where he digresses too far from weighty concerns, and interposes a great mass of facts and deductions which are merely collateral, the usefulness of the whole book is weakened in proportion as the attention is called off and distracted by the multiplicity of topicks discussed.

Not only has this volume the plates of Smellie appended, but the aphorisms of Denman, usually published in a separate volume, are published with it. This is a great addition to its value, and we have no doubt, but that the members of the profession will be eager to supply themselves with a copy of this work, which, while it feasts the mind with the invaluable results of the author's long experience, is capable of delighting the eye by the beautiful manner in which it is printed.

ARTICLE III.

MEDICAL JURISPRUDENCE.

Translated from the French.

INFANTICIDE.

THERE is no subject in Medical Jurisprudence more important, more delicate, and surrounded by more numerous obscurities, than Infanticide. Sometimes a concourse of extraordinary

circumstances depose against innocence; again, the crime is concealed under the thickest veil. Without vast knowledge and a great sagacity, the physician who is called to pronounce upon the honor and life of an accused person, exposes himself to be seduced by deceptive marks, or to err from prejudice; and if he does not know how to establish, by evident proofs, the existence of a crime, which culpable address conceals from all eyes; if he is ignorant how to separate an unfortunate and accidental event, from circumstances which give it the aspect of criminality, what horrible evils will not his unskillfulness cause!

The word *infanticide*, is derived from the Latin, *infans*, an infant, and *cædo*, I kill: the violent and premeditated death of an infant upon the point of birth, or born alive. This name of a crime which the laws punish as homicide, may be applied according to its etymology, and in a general sense to the murder of an infant which is several years old, and to that of the fœtus still contained in the womb, and more or less distant from the natural term of parturition. Custom and the necessity of distinguishing atrocities which have each a particular character, equally restrain the term *infanticide* to the violent and premeditated death of an infant born alive or on the point of being born.

Fear of publick disgrace, and the absence of the tenderest feelings of our nature, in the heart of a corrupt woman, are not the only causes of infanticide: misery has been known to arm the hand of the mother against the life of the being she had borne for nine months in her bosom. If we believe certain historians, some people of antiquity, put to death, without hesitation, those infants which were born with a very delicate constitution, or were deformed; and many writers have affirmed, that in some savage countries, this abominable custom is still followed. To believe in such an accusation without new and irrefragable proofs, would be an outrage on humanity and morals.

By an edict of Henry the second, 1556, and which has been the law in France during two centuries, every woman convicted of having concealed her pregnancy, and thereby caused the death of her child, was condemned to suffer death. This edict rendered a declaration of pregnancy necessary, to which few women would resort, and which was sometimes absolutely im-

possible. The law was silent, when it was opposed by the report of a surgeon, that the child was not born at the full time, or was still born; but it was too vague and too severe: it admitted no distinction, and yet all mothers accused of infanticide, are not criminal to the same extent. This edict might affect an unfortunate woman, whose child was either born dead, or died during its birth, although the mother had taken all the cautions demanded by prudence to preserve its life. In short, it made no difference between infanticide, properly speaking, and a pure and simple concealment of the birth, and regarded, as murder, the abandonment and exposition of a new-born child. The present legislation has removed these intolerable imperfections: it punishes with death, the violent death of a child newly born, or about to be born; but the premeditation must be proved.

Although infanticide is almost always executed by an unnatural mother, other persons may commit this crime, instigated by hatred or a spirit of vengeance. Yet the Medico-jurist ought to be aware, that poor persons have been known to throw down a privy, or to conceal with care, a still-born child, free from external violence, solely to spare the trouble and expense of a burial.

Two paragraphs of this article will be devoted to indicating the different ways in which infanticide may be committed; in a third I shall speak of many causes of the death of a fetus born alive, which exclude the accusation of infanticide; the fourth and fifth will comprehend an exposition of all the circumstances which relate to the examination of the infant and of the mother; and lastly, I shall discuss different questions, the solution of which especially contribute to establish the existence of the crime. Each of these great heads will be subdivided into many sections, and a general view will conclude the study of one of the most important parts of Medical Jurisprudence.

This crime is considered as infanticide by *omission*, and infanticide by *commission*. In the first case, the infant has been the victim to a voluntary omission of the first attentions necessary to the preservation of its life, and if it be shewn that there was no premeditation, the crime does not exist. In the second case, the infant has perished by the action of external

violence directed against it, with an intention to destroy.

Infanticide by omission.—Authors divide this into voluntary and involuntary: if it has not been premeditated, why name the death of a child infanticide? Because, it is necessary to examine and decide in every case, whether the death should be attributed to the intention of the mother or not.

Causes of Infanticide by omission.

1st. TEMPERATURE.—The weak and delicate infant receives a vivid impression from external agents: in the womb of the mother, it is surrounded by an elevated temperature, and when it is born, its body is strongly affected by the contact of the air. If the air be very cold, its prolonged application will be sufficient to destroy its life in a few moments. Should we slight this cause, if we find, during the winter, a little unfortunate exposed in a solitary place, lying nearly or altogether *naked, upon stones or the ground, stiff, motionless, livid, contracted*, and gathered up on itself, and the examination of its body united to the docimasy of the lungs, proves a congestion of blood in the great vessels and auricles, and the existence of respiration after its birth? It will die as readily if left in a solitary place extremely hot, near to a blazing fire, or exposed to the action of the sun during the summer, if there is nothing to guard it against the fatal neighbourhood of a putrifying placenta. These different causes of its death cannot be involuntary: they have been premeditated; nothing can disguise their dangerous influence, and they constitute a veritable infanticide.

2d. INANITION.—If the infant be deprived, during many days, of nourishment, it will certainly perish from inanition, and this cause alone acts when a criminal mother exposes her infant in a deserted place, the temperature of which is not sufficiently rigorous or elevated to destroy life rapidly. These different circumstances are nearly always combined. Abstinence is attended with danger to the infant, when it exceeds twenty-four hours, and it must be so much the more cruel to the child, when a general irritation stimulates its organs and consumes its strength.

3d. ASPHYXIA.—In the most common position, the head of the infant, during birth, performs the following movements: as soon as the face is entirely disengaged, and the occiput, after

having passed from under the arch of the pubis, has ascended upon the *mons veneris*, the face returns to its first position, and is placed towards the internal posterior part of the right thigh, at the side of the sacrum of the mother. This position confines the motions of the thorax, sometimes places the mouth and nostrils upon parts that close them, and exposes these cavities to be filled by blood, mucus, and portions of the after-birth, which is expelled by the uterus after the birth of the child. A mortal *asphyxia* may result from this concourse of unfortunate circumstances. Hence, the precept which directs the accoucheur to place the infant about to be born, crosswise upon one of its sides, between the thighs of its mother and as near as possible to the *vulva*, from which it is to be freed. A young woman unexpectedly taken in labour, and far from all assistance, might, it may be supposed, suffer her infant to perish in this way, without being culpable of infanticide; but a woman who has borne children, has much less right to this excuse, unless accident has placed her in a situation, making it impossible for her to bestow the proper attentions upon her babe.

4th. HEMORRHAGE; FROM OMISSION OF THE LIGATURE OF THE UMBILICAL CORD. When a new born child is separated from its mother, by the cutting, breaking or tearing of the umbilical cord, will it perish from hemorrhage if the umbilical vessels are not tied? Is the voluntary omission of the ligature of this cord, a mode of infanticide? What circumstances may render it unnecessary? Is it such as to exclude even the suspicion of crime? In short, by what signs is a mortal umbilical hemorrhage declared?—Are the questions we are about to examine.

The ligature of the cord has been practised from the remotest antiquity. Hippocrates considers it necessary; savage nations employ it, and all civilized nations have adopted it, from time immemorial. A great number of Medico-jurists, have thought that the omission of this ligature produces a hemorrhage necessarily and absolutely mortal, and their opinion has been often sanctioned by the Faculties of medicine of Giessen, Leipzick Wirtemburg and Helmstadt; and we read in the transactions of the Academy of Berlin, that many criminal mothers have confessed that they have killed their infants, by designedly omitting to tie the umbilical cord.* The absolute necessity of this operation began to be considered problematical in the

*Alberti, de funiculi umbilicalis neglecta alligatione limitanda.

first part of the 18th century. The consequences of its omission appeared to be slight to John Fantoni, and in 1731 to Michael Alberti; "There are many observations" says the latter "of the umbilical cord being left untied, without any injury accruing to the life of the child." † Such was the belief of Schultz, professor in the university of Halle, of Kalsmidt at Jena, who made two conclusive experiments on infants, one of which scarcely lost six, and the other twenty drops of blood; of Schnell, at Gottingen, of Eller, Trew, Vater and many other physicians, and among others of Mr. Girard.

These physicians establish one phenomenon incontestibly.—After an infant has respired, the umbilical cord becoming useless ceases to pulsate; it shrinks, either spontaneously or from the impression of the air. They say there is not a cause, the action of which is sufficiently permanent to make the blood resume a route it has abandoned, so far as to produce death. Many contradictory opinions have been advanced on this point of doctrine, and the result of the researches they have suggested, are carefully exposed in the manual of anatomical investigations by those, which M. Marc has presented us with, and are the following—

1st. The ligature of the umbilical cord is not always indispensable, since the cord has remained untied without being followed by hemorrhage, in the case of many infants placed under favorable circumstances. But should we conclude that this operation is superfluous? Certainly not; its utility is demonstrated by many examples of infants dead of hemorrhage in consequence of omitting the ligature of the umbilical cord. Hence this consequence which it is useful to connect with it, and hence a woman already a mother, and brought up in the opinion of the absolute necessity of this ligature, incurs the accusation of infanticide, if it be proved that she has omitted this operation.

2d. Rose thinks we should never decide exclusively from the tying or not tying of the umbilical cord, relative to a mortal hemorrhage, or in a contrary case; if it be possible that the cord has been tied after the hemorrhage, it is not impossible on the other hand that the infant has perished by some other cause than the loss of blood.

† "Non desunt observationes, funiculi umbilicalis non deligati, unde vita infantis multum contigit damnum."

3d. Rose's translator, the learned Marc, does not think with him, that feeble infants, whose mass of blood is very small and whose circulation is less animated, are also less exposed than vigorous infants to perish by an hemorrhage of the cord. If a robust child may perish from an active, a weak one may become the victim of a passive hemorrhage, and every loss of blood is much more fatal to it than to the other.

4th. It is very necessary to attend to the time when the cord is to be divided. If the infant has cried and respired, the flow of blood from the umbilical vesssels is less to be feared; in the opposite condition it will be much more dangerous.

5th. It will be formidable in proportion as the division of the cord has been made near to the abdomen.

6th. The rupture or laceration of the cord exposes it less to hemorrhage than cutting it with a keen instrument. This hemorrhage is by no means to be feared when the lacerated cord presents traces of bruising and of sanguineous coagulation.

7th. We cannot affirm that an hemorrhage from the umbilical cord has caused the death, even when all the marks exist, unless we find no other lesion capable of allowing a loss of blood, when the infant is perfectly formed and the umbilical cord is neither engorged nor collapsed.

8th. Neither can we pronounce on the existence of a criminally premeditated action, even when every thing concurs to demonstrate that the infant has fallen a victim to an umbilical hemorrhage. May not this excessive loss of blood have been caused during the labour, either by a too sudden separation of the placenta, or by a laceration of the cord, especially when the expulsion of the child has been sudden, and followed by fainting of the mother?

The bulletin of the Medical Society of Emulation for 1809, contains an extract made by M. Marc, from a memoir, entitled "A historical and critical glance at the different opinions of Medico-jurists, relative to umbilical hemorrhage considered as a cause of death to new born children." Every thing appeared to have been said on this subject; yet, M. Girard, of Lyons, has again spoken on it with interest. When the infant is born, the pulsations of the umbilical arteries are regular and well marked; they soon become weaker without losing in regularity; at length they cease gradually—first near to the placenta, and

so up to the navel, during which time the cord diminishes in size and becomes of a yellow colour. If, when we do not feel the pulsations of the arteries near to the placenta alone, we cut the cord in this place, the blood, says M. Girard, still flows abundantly; but when the pulse is only sensible near the navel, the blood does not flow, but falls drop by drop from the extremity of the divided cord. He thinks that the cord should be cold throughout the whole of its length before it is tied, and without arterial pulsation, as then the new circulation is established without trouble or agitation. M. Girard attributes to the opposite practice a congestion in the iliac arteries, which consecutively produces engorgements of the liver, the jaundice of infants, and a more or less disturbed state of the abdominal viscera; congestion of the lungs; predisposition to hydrocephalus, convulsions and tetanus. M. Pinel and M. Leroux, Dean of the Medical Faculty of Paris, have many times had occasion to observe, that the precipitate tying of the umbilical cord, often gives rise to convulsions, epilepsy and jaundice. Morgagni, who had observed in almost all the bodies of infants, dead immediately after birth, a sanguineous serosity within the abdomen, could not account for the fact. M. Leroux believes that the cause is the precipitation with which the cord is then tied, before the pulsation of the arteries has ceased, and the death, which is the usual result, seems to him to arise from this circumstance. In leaving nature to act for herself, M. Girard has never known infants to experience the slightest accident: on the contrary, they were always the better for it; they had an appearance of more florid health than when the cord was tied immediately after birth.

The ligature of the umbilical cord is now absolutely necessary, except when the vessels are cut during the continuance of the circulation through it; and Fodere agrees with Girard, of Lyons, that it should have no place in an accusation of infanticide by omission, against a woman who was brought to bed secretly and alone, if the infant should be found dead and the umbilical cord found still attached to the placenta, without having been tied. Still, the infant may perish from hemorrhage of the placenta, if, as very rarely happens, the uterus have expelled, in the same instant, the placenta and the infant. The circumstances pointed out by Mahon, cannot render

the ligature of the cord necessary, or at most have prevented the omission of the ligature from causing death. Thus, if we suppose a compression of the belly by a bandage, or the effect of excessive cold, the extreme delicacy of the child, or peculiar conformation of the umbilical vessels, these circumstances have prevented the hemorrhage, and the death is caused in some other way. The head may be born, the child may have respired, but an accident, the extreme difficulty of the labour, may have destroyed its life before its complete expulsion from the uterus, and when it has been entirely freed from the womb, it has been separated from the mother by a division of the cord, the ligature of which has been rendered unnecessary by the death of the child. In such case, the examination of its body will prove that it has not perished from umbilical hemorrhage.

(To be continued.) [M. MONFALCON.

ARTICLE IV.

PRACTICE OF MEDICINE.

Observations on the disease generally known by the name of the SICK STOMACH; by Dr. Asa Coleman. Communicated for publication, by D. Drake, M. D.

A DISEASE has been prevalent in some of the western counties of the state of Ohio, since their first settlement, which is singular in its symptoms and frequently fatal in its effects. The country people name it the Sick Stomach, from the sickness and vomiting attending it. This disease is common to a certain extent on the MIAMI RIVER and all its branches, north of Dayton, particularly on Mad River, and the open country between this and the Scioto river. Some other parts of the Western Country are also subject to it.

This malady appears to be, in a great measure, confined to particular tracts of country, often of no great extent, and in which there is no peculiarity as to humidity, dryness or elevation, different from the adjoining country where it is not met with; nor does it appear to extend its geographical limits since the part of country in question has become generally settled. The time at which it is most common, is that of the Summer and Autumn, though it is occasionally seen in all the other seasons.

In narrating the symptoms, we shall divide the disease into three stages or forms, to render the description more perspicuous.

First stage.—The patient complains of a general weakness and lassitude; pain or soreness in the calves of the legs, sometimes extending up the thighs; disagreeable sickening sensations are felt at the stomach occasionally; the appetite becomes somewhat impaired; sometimes a disagreeable gnawing sensation in the stomach is complained of, especially if food be not taken at the usual time. This sensation appears to be less after eating. He is now easily exhausted by exercise, especially from walking, which increases the pain in the calves of the legs, and produces so much loss of muscular power that the limbs are not able to support the body, and the patient is compelled to rest. This condition is for the time ameliorated thereby, but will return on a repetition of the exercise, and if this is violent the disease assumes a more active form. These symptoms will sometimes continue for weeks or months, and disappear without the more active forms of the disease succeeding, while, under other circumstances, they quickly ensue with much violence. During the first stage of the disease, the pulse differs but little from the healthy state. It is sometimes rather weak, and slower than natural, or it is quick and tense. The bowels are generally regular.

Second stage.—These symptoms sometimes continue for a few days only, especially if the patient has taken much exercise. What I term the second stage then begins by an aggravation of the preceding symptoms. The great loathing, nausea and disagreeable sensation are much increased, and soon succeeded by vomiting or distressing retching to vomit, without throwing much off the stomach.—The vomiting often returns every hour or two during a whole week together, and the patient experiences some relief after each effort. During this stage of the disease the strength is much prostrated; the patient complains of great distress and a burning sensation at the stomach; the bowels become obstinately costive; the thirst is frequently great; hot belchings and hiccough are often troublesome; the tongue is slightly furred, and the breath has a peculiar, disagreeable smell, resembling that of a person under a mercurial course.

The countenance is generally somewhat flushed, and the

patient inclined to be stupid and comatose. There is often dyspnœa, and the respiration is quite laborious.—The pulse is slower than natural—weak—easily compressed--becoming more frequent and somewhat tense about the third day from the commencement of the vomiting. The extremities are generally inclined to be cold, and the skin is generally as cool as natural and dry.

The vomiting will often continue six or eight days, the patient remaining unable to take any solid food, and liquids are speedily thrown from the stomach.—As the patient is somewhat relieved after each spell of vomiting, he falls into a doze. These symptoms will continue, in favourable cases, from the seventh to the ninth day, with greater or less violence, when they suffer some abatement, and the patient is able to retain some food on the stomach, and has generally a very speedy convalescence. Sometimes the disease, instead of taking the above-mentioned course, assumes symptoms of a more fatal character, which I shall describe as the third stage or form of the disease.

Third stage.—About the third or fourth day from the commencement of the vomiting, the patient experiences a slight pain in the head; for a short time becomes highly delirious, with continual tossing and moaning. The pulse is rather tense and frequent; the eyes protruded, suffused, sometimes the pupils are dilated; the patient manifesting many symptoms of true phrenitis. In such cases, the vomiting is often not so great, nor the bowels so obstinately constipated. When these symptoms arise, they are apt to destroy the patient in three or four days, if not sooner. In other cases about the third or fourth day, the patient will fall into a very stupid comatose situation with a feeble pulse, and symptoms appearing to denote that a gangrene of the stomach has ensued. Such are, the cessation of the distress of the stomach, with an occasional vomiting of black, porraceous matter. After the appearance of these symptoms, the patient is generally destroyed in a day or two. Such are the general symptoms and causes of this disease, when not interrupted by medical treatment, which produces variations to a greater or less extent.

The propensity to sleep is often destroyed for several days after an attack of the active form of this disease, and an un-

common degree of wakefulness is experienced. No chilliness occurs at the onset of this complaint, neither during its course, nor does it appear subject to any thing like periodical exacerbations, and in general there is no remarkable indication of superabundance of bile. In some few cases, however, there is a considerable discharge of green bilious matter by vomiting, though generally, the material thrown out of the stomach consists of liquids that have been swallowed, which are often hot, acrid, or sour when ejected. From the throat and fauces there is commonly a discharge of thick viscid phlegm.

From imprudent exposure those who have had this disease in its active form are liable to relapses, but perhaps not more so, than in our common autumnal diseases. The patient usually convalesces with speed, seldom requiring tonic medicines.

This affection attacks indiscriminately both sexes, and all ages and conditions; though it is more severe upon middle aged adults, than old persons or children. The degree of danger is to be estimated by the violence of the symptoms, especially from the presence of such as denote gangrene of the stomach, or great disturbance of the brain. Though the hiccough is often a very troublesome and distressing symptom, yet it does not point out any particular danger. The first stage, seems to be a kind of chronick condition, and does not continue for any definite period. The more active forms of the complaint are very regular in duration, and seldom exceed the ninth, or stop short of the seventh day, unless in cases of fatal termination. The mortality from this disease is perhaps not so great, as might be expected from the nature of the symptoms. About one case out of twenty or thirty is lost, of those who experience the disease in its active form.

MEDICAL TREATMENT.

In the first stages, an occasional use of emeticks, cathartick, and laxatives with rest and the use of light, wholesome food, will generally clear the system from its effects in a few weeks. In the more active forms of the disease, the exhibition of medicine is often extremely difficult, owing to the great irritability of the stomach. Emeticks are then absolutely hurtful, especially antimonials, because of the irritation they excite in the stomach. In some cases where there was much retching to vomit, without throwing much up, I have directed a strong

infusion of Chamomile flowers, or warm water, to clear the stomach of its foul contents, (with great advantage.) Cathartics especially of the saline kind, afford considerable relief, if the stomach will retain them sufficiently long to permit them to act on the bowels. It is generally necessary to assist their operation by the use of stimulating enemata, in order to overcome the obstinate costiveness. These remedies must be repeated daily during the continuance of the disease. Before resorting to the use of cathartics, however, I generally have recourse to some medicine for the purpose of allaying the irritability of the stomach, and to check the vomiting until the cathartic has time to operate. This is often difficult to accomplish. For this purpose I have found a solution of a few grains of carbonate of potass in water, very serviceable, when often repeated; sometimes I have added a few drops of tincture of opium. The sugar of lead is another remedy that I have seen advantageously used to allay the vomiting till the operation of a cathartick could be produced. The operation of a cathartick generally affords a considerable alleviation of the distressing symptoms; a large blister over the stomach appears to be of much service; bathing the feet in hot water and applications of mustard to the feet and wrists are usually resorted to. The general warm bath has been employed in some instances with advantage.

Blood-letting has not been employed as a general remedy in this affection, nor does it appear essential to a cure in most cases: from my experience, I deem it of much greater consequence, than is generally apprehended. The pulse, from being weak and depressed because of the excessive vomiting, often becomes fuller and stronger, and the symptoms are relieved by blood-letting. In cases where the brain begins to suffer, it is the remedy on which I chiefly rely; patients have borne it to a great extent with manifest benefit. When the burning sensation at the stomach is troublesome, I have sometimes given nitre in small doses.

When symptoms of gangrene of the stomach begin to make their appearance, the use of medicine is necessarily very uncertain. I have, however, seen two or three patients in whom there was a vomiting of black porraceous matter, with a weak fluttering pulse, and who were in a comatose state, recover by

the free use of stimulants, such as wine, decoction of bark, camphor, and the external application of blisters, sinapisms, and stimulating enemata.

Remarks on the causes and nature of this disease.

There are some circumstances connected with the history of this disease, so peculiar as to make them quite interesting. It is now a generally received opinion in the parts of the country where it prevails, that it is produced by some peculiar poison of the vegetable kind, and that the human system is affected with the disease only in consequence of using food that has been under the influence of this poison, such as milk, butter, or the flesh of animals labouring under the effects of this disease. The idea of a disease so formidable produced in this manner may appear somewhat chimerical to some, but there are many circumstances that favor the conclusion, and leave little doubt in my mind of its being the fact.

1st. That domestic animals become affected with this disease, and under certain circumstances only, and that they are not subject to it except in parts of the country where the human species are subject to it. That cattle become affected with the disease by eating some vegetable poison, is inferred from these circumstances; cattle in pasture fields where the ground has been cultivated, are not subject to it, it being only those that run at large in the woods and commons. I will state one of the many instances that have fallen within my observation, in support of this opinion: A piece of woodland was enclosed as a sugar orchard, in which there was no water either running or stagnant; situation high and dry; if an horse or ox were suffered to graze in this enclosure, for twelve or twenty-four hours, it would certainly become affected, and perhaps die in a day or two; while cattle in a pasturefield adjoining, have grazed the whole season without the least symptoms of it. It may be inferred from circumstances like the above, that it is not the effect of impure water. Many instances have been related to me by persons of credibility, of horses escaping from the stable and not remaining in the woods more than twelve or twenty-four hours, becoming so much affected as to die in a day or two, having all the peculiar symptoms of this disease in brutes, and this often in the winter season, when the ground was covered with snow; from which circumstance it is suspected to

be a vine or some plant not easily affected with the frost. The disease is most fatal among cattle and horses in the fall months, but they become affected with it at all seasons of the year when turned to the woods. Cattle and horses appear subject to what I have termed the chronic form of this disese, and will show symptoms of it for weeks or months after being removed out of the limits of the supposed cause, and will also thrive well and get fat if the affection is but slight, and they are not subject to much exercise.

Cattle and horses do not always become affected with this disease if allowed to range in the woods where the disease is common; some appear to possess sufficient instinct to avoid the poisonous vegetable. Cattle that have been raised in pasture fields or in a distant country, appear most liable to become affected with it when turned to graze where the disease is common.

2d. That the milk, Butter, Beef, or the flesh of any animals, killed while laboring under this disease, will produce disease again in other animals, is proved by daily experience, sucking calves, which have no food but the milk of an affected cow, will shew the peculiar symptoms, and often die of the disease; persons making use of the milk or butter, from the same cow at the same time, will become affected.

The milk given to domestic animals when the sucking calf shows symptoms of it, will produce the disease upon them, and this often without the cow's appearing much affected by the disease, a milch cow seldom showing many symptoms of it when regularly milked; the poison appearing to pass off principally by that secretion.

I saw an instance of a whole family becoming sick with this disease, some of them in a few hours after dining upon a loin of veal, in which it was afterwards satisfactorily ascertained that the calf laboured under the disease at the time it was butchered, being sold in market by an unprincipled person. I well recollect of an instance of several persons becoming severely affected from incautiously eating of a pig, which had been fattened upon the milk of a cow that was known to be affected with this disease; all of the family who ate of it, were seized, some of them in a few hours: there were circumstances

attending this case, admitting no doubt of the source from which it originated. The effects of this disease on hogs and dogs, are often severe, and a subject of very common observation in parts of the country where the disease is prevalent, they will often after feeding upon the carcase of an horse or ox, that has died of this disease, become affected and die manifesting similar symptoms as the animal did of which they had eaten; even the wolf has been seen near a carcase, unable to make way to his shelter, with evident marks of this disease.

Mr. Thomas Hill, a respectable farmer living near the south west branch of the Miami river, informed me that having an ox die of this disease in his yard, and neglecting to remove it, his hogs, about seventy in number, devoured the carcase, and out of the above number about forty died in the course of twenty-four hours; the hogs were in good order and appeared to be healthy previous to their feeding upon the carcase of the ox.

It will doubtless be asked, if it be a vegetable poison that produces all these alarming effects why has not the particular *vegetable been pointed out and its qualities ascertained, especially* as its effects upon animals are different from those of any with which we are acquainted? I can only answer that I have taken much pains, and tried some experiments, upon plants that have been supposed to be the cause, but have been as yet unsuccessful in finding any one that would produce the peculiar symptoms of this disease. Perhaps a strong evi*dence of the origin of this disease being in some poisonous* vegetable, may be drawn from the total exemption of those persons from it, who are particular as to the meat, milk, butter and cheese they make use of, in situations where the disease has been most common; cattle and horses are also perfectly exempt from it while kept in pasture fields where the ground has been cultivated, or in the stable. By attention to these *circumstances, farmers have a sure way of avoiding it in their* persons and cattle: were not this the case, some very fine tracts of country would be difficult to inhabit, from the prevalence of the disease.

This disease is perhaps not dissimilar in many respects to diseases produced by some of the vegetable poisons of the narcotick class, with which we are acquainted, a large portion

of it producing stupor, nausea, anxiety and vomiting, with other marks of an inflammation of the stomach; sometimes vertigo, pain in the head and delirium, where the disease is violent; the inflammation of the stomach perhaps is most generally of the erythematick kind, sometimes evidently of the phlegmonous. As to the particular modus operandi of this supposed vegetable poison in producing the constitutional affection which evidently takes place in what I have termed the chronic form of this disease, as well as in its active form, I shall not attempt to explain or hazard an opinion upon.

The foregoing remarks will apply to the disease described, as it has appeared for several years past. The last season it has been much more prevalent than usual, and unusually severe in its symptoms. It is now the middle of January, 1821, and the complaint is still common, and unusually fatal. The uncommon prevalence of the disease during the season, has been attributed to the unusual dryness of it, which produced a great scarcity of vegetable food for cattle, thereby inducing them to eat any thing green, which has rendered it very fatal to them; and consequently, by inattention or scepticism as to the cause, *has made it very prevalent and severe with the human species.* The symptoms attending the disease the past season, have been more inflammatory than usual, and the affection of the brain greater, requiring early and copious blood-letting; some cases have terminated fatally in two or three days, from the active form of the disease supervening where medical aid was not early called for, or improperly applied. The disease has *been attended with a peculiar pain in the head, often with a* stupor or coma, which if not relieved by early blood-letting has soon been followed by insensible stupor, or high delirium and has soon destroyed the patient. In some cases a dilatation of the pupils of the eyes has been observable. A free use of the lancet, catharticks, epipastics, and the use of alkalies, has been the most successful mode of treatment.

Facts relative to the same disease, by Dr. Haines, of Dayton.

THIS disease prevails chiefly in the neighbourhood of heavily timbered, level and consequently rather wet Oak land.

Cattle, sheep and horses, which range in these tracts, are subject to a peculiar disease known among the people by the name of the *Trembles*, which they suppose to be produced by their eating of a plant, as those animals which range in the neighbouring barrens or beech land, are free from the disease until they find their way into these low bottoms; and so well are the people acquainted with this fact, that if they see cattle that have been accustomed to range in the barrens, enter these suspected ranges, they foretell the sickness of the calves and of the family using the milk. Calves are seized with trembling and vomiting during or soon after sucking, and frequently die of the disease. The milk has the same effect upon dogs. Children drinking the milk, leave the table and vomit. Upon adults its effects seem to be less sudden, but eventually more severe. It seems somewhat singular, that milch cows escape the disease while their milk produces it in other animals. It seems as if the deleterious matter were eliminated from their systems through the lactiferous vessels.

Beef and mutton produce the disease. Several instances have been related to me, in which beef and mutton killed in the neighbourhood before mentioned, have sickened all who ate of them. Some who have had the disease, say they can instantly discover by a peculiar taste, such beef or milk as will produce the Sick Stomach. Dogs eating the flesh of those animals which die of the Trembles as it is called, sicken and die with vomiting and that extreme debility characterized by trembling and inability to stand or walk.

If cows be kept in pastures and not suffered to run in the woods, their milk may be used with impunity. That there are difficulties in admitting the opinion that this disease is caused by some vegetable poison, and in proving it to be true without a direct experiment, is acknowledged; but taking into consideration the testimony that has been advanced, and the almost universal sentiment of the people who have experienced the disease and have had it in their families, there appears to be much probability; and an opinion so general as this is among the people ought not to be rejected without candid investigation.

An attack of the Sick Stomach is preceded by universal debility, more particularly felt in the lower extremities; impaired appetite, nausea, occasional vomiting and an offensive breath,

so peculiar as to be instantly recognized by any one conversant with the disease. In some, these symptoms constitute the whole of the disease and exist for several weeks. In others they are followed, after some days or weeks continuance, by a more severe and general attack characterized by great debility, sometimes irregular chills and flushings, a sense of great oppression about the precordia, anxiety, deep respiration, heat in the region of the stomach, compared by the patients to fire, boiling water, &c.; thirst, nausea, and at longer or shorter intervals, according to the violence of the attack and to the period of the disease, violent retching and vomiting.

In the arterial system the disease puts on a variety of aspects in different persons and in different stages of the disease. In the same person changes take place not unfrequently in the space of a few hours. The heart beats with such violence in some cases as to elevate the bed clothes, and to excite horror in the physician and by-standers on laying the hand upon the patient's breast. It seems to labour convulsively and as though it were clogged in its motions by a superabundance of blood. The larger vessels partake of the heavy, throbbing and laborious motions of the heart. The blood forsakes the surface, especially that of the extremities, leaving it cold, and seems to rush to the larger internal vessels, engorging the viscera and producing that oppression and anxiety about the precordia, sighing in respiration, palpitation of the heart, &c. The patient feels nothing which he can strictly denominate pain; but the sense of heat, the oppression, the palpitation of the heart, and the violent efforts to vomit, constitute an *extreme* degree of *distress*.

In other cases there is much less of this turmoil of the system. The patient in the intervals of vomiting, lies in a stupid, listless condition, from which he is roused only by a returning fit of vomiting.

The state of the pulse varies with the other symptoms. In the early stage of the disease, it is sometimes full and tense, at others full and soft. Later in the disease it is slow and weak, exhibiting little or no febrile action, except it be of suffocated or at least unequal excitement. The bowels are obstinately costive, and the stomach so irritable that medicines and drinks are rejected soon after they are swallowed. In the

early period of the disease some bile is discharged, but never, I believe, in great quantities. The matter ejected afterwards seems to be little else than the drinks, &c. taken in, mixed perhaps with a secretion from the stomach, and in violent cases, a flaky substance varying in color from a light brown to a deep black, is mixed with the fluids.

ARTICLE V.

SURGERY.

Case of Fungus Hæmatoides; communicated by Dr. William N. Luckey, of Circleville, Ohio.

MISS Mary S———, aged 15 years, of a fair complexion, blue eyes, comely person, but rather slender, an irritable habit, had, during the last three summers, been afflicted with an eruptive disease of the head with an enlargement of the glands of the neck. This eruption and enlargement of the glands of the neck, however, at the approach of winter, usually ceased without leaving any unpleasant consequences.

About the first week of June, 1821, she felt an obtuse pain about the head of the Fibula of the right leg. This pain, which at first excited but a very slight degree of uneasiness, was increased by exerting the limb in the act of weaving, which was her occupation.

About the middle of July, a small colourless tumour, about the size of a hazlenut, was perceived directly over the seat of the pain which continued to increase in size, attended with a proportional augmentation of distress. When the tumour had increased until its diameter was about three inches, (its figure slightly irregular) a physician accidentally calling at the house of the patient, under the impression of its being a "rheumatick white swelling," advised the application of a blister, with a view of discussing the tumour—which prescription was followed. She was now confined to bed. The part was very painful. Slight chills, with fever, attended. The surrounding parts had now begun to swell, when a second physician was sent for, who was under the impression that the disease was scrophulous. This opinion was rendered probable from the former scrophulous like swelling of the glands of the neck.

From this view of the disease, a blister was again applied, and the discharge supported for four weeks. The blister being healed without any salutary effect, emollient poultices were resorted to with a view of maturating the tumour. Having continued these for four weeks longer, the tumour was now four inches in diameter, and the attending physician supposing that a complete suppuration had taken place from the peculiar sensation to the touch, made a deep and extensive incision; but instead of finding pus, to his utter astonishment, an effusion of probably a quart of venous blood was the only discharge. Poultices were again applied, with a view, if possible, of promoting suppuration—but in vain. A frightful fungus of a dark red colour soon began to shoot out from the incision, and in a very short time had increased to the enormous size of thirty inches in circumference. Her sufferings were now beyond the reach of expression. The diseased limb was of four times its natural bulk, while the rest of the body wasted away rapidly, under the influence of hectick fever and strangling cough, accompanied by a dry, brown crust on the surface of the tongue.

The tumour had now attained its acme, and continued to discharge an ichorous fluid to the amount of perhaps a pint daily, corroding the parts where it touched. Causticks of every description, were employed, but without any effect: its power of resistance bade defiance to all attempts for its destruction. The central and most prominent part of this fungus, shortly became livid, and after sphacelating, dropped out in a putrid liquid mass. The chasm formed was frightful. With fever the most ardent, she had now to endure pain the most excruciating. The bowels at this time were regular, although large portions of opium had necessarily been given to mitigate the extreme pain, which was now particularly felt during the night. Soon after the sloughing, a part of the bone was uncovered, and about an inch of the head of it exfoliated. The attending physician now proposed amputation as the only means of cure; but the patient and her friends not assenting to it, a consultation of four physicians was called, who, upon examination of the ulcer, declared it a "Fungus Hœmatoides," and concluded that although amputation was the only means of finally saving the patient's life, yet in consideration of the ex-

treme debility, hectic fever, and tendency to mortification, an operation at that particular time, was deemed really hazardous. Means were therefore resorted to for the purpose of preparing the patient for the operation. The health very gradually improved, although the discharge from the ulcer was very profuse.

March 11th, 1822, her situation was now such as we thought would justify the operation, which was accordingly performed by Dr. Wilson, of Lancaster, and myself. Upon removing the patient from her bed to the operating table, an artery from the fungus burst forth and bled profusely. As the integuments appeared to be diseased about four inches above the knee, we thought it necessary to operate about four inches higher than the diseased parts. The arteries were so dilated in consequence of diseased action, that we found it necessary to confine five of them with ligatures. The fibula to the extent of six inches, was evidently destroyed. As a dissection of the limb after amputation, was refused, we were unable to ascertain the precise extent or consistence of the ulcer, or the injury of the fibula; nor could we satisfy ourselves whether the Tibia was diseased. Four days after the operation, the hectic ceased.—The cough which had been troublesome from the time the fungus had made its appearance, did not cease until four weeks after the operation. The appetite improved, sleep tranquil, the stump healed, and in eight weeks from the operation her health was entirely restored. (It might be worthy of notice, that the patient had a total suppression of the *menses* from the commencement of the disease until the end.—She *had* menstruated at 14 years of age.)

From the writings of the principal authors which I have read, it appears that this formidable disease is rare. It does not appear that Cooper, (of London,) had met with a case of it in his own practice, as he has referred us to cases related by Burns, of Glasgow, who, he tells us, was the first who has given us a good account of the disease. He has also referred us to Hey, of Leeds, and Freer, of Birmingham. The name applied to it by Barns, is "*Spogonid inflammation.*" It seems that Mr. Hey was of the opinion, that if the *least* portion of the cyst is left behind in the operation, it is capable of reproducing the disease, and that no escharotick, (not even the undiluted sulphurick acid,) can always suppress the

growth of such fungus. He appears to be of the opinion that no medicine has the power of curing the disease, although Thomas has noted a case that fell under his care which was successfully treated by the application of opium and arsenick. Dr. Dorsey, of Philadelphia, in his System of Surgery, has noted the disease, but has not detailed a case under his own management. He cites a case from Wardrop, which terminated fatally. Dr. Dorsey, in his description of the disease and its symptoms, concludes with saying, "the patient dies hectic." It would appear from the history of this affection, as given by authors, and the termination of it, that most cases have proved fatal, except those in which amputation was resorted to; and from my own experience, I would say without hesitation—

"Cuncta prius *tentanda*; sed immedicabile vulnus.
"Ense recidendum; ne pars sincera trahatur."

I remain respectfully yours, &c.

WM. N. LUCKEY.

Interesting case of Tumour on the head of an infant at birth; communicated by Dr. W. Wood, Jr. of St. Clairsville.

ON the 29th of October, 1820, I was requested to visit the child of Mrs. ———, of Belmont county, which, (as common report said,) was born with two heads. I found the child, to all appearance, healthy and well formed, except that its head was something larger than ordinary, and had a large tumour attached immediately over the posterior fontanell, the size of which was quite equal to, if not greater than that of the head to which it hung. It was attached by a neck of two inches diameter, and was covered with hair resembling that on the scalp.

The history I received from the Midwife who waited upon Mrs. ——— at the birth, was, that upon examining she found the labour considerably advanced, and what she then supposed to be a breech presentation, and with much prudence, (which by the way is not a general characteristick of our female practitioners,) patiently waited for nature to perform her part in the delivery, which was regularly accomplished in due time. After the child was born, it voided the meconium properly; sucked with avidity; continued to pass fœces and urine regular-

ly, and was never affected in the slightest degree with paralysis.

Upon careful examination, I found three small arteries passing along the neck of the tumour, whose pulsations were very distinct. On its apex or most prominent part there were some vesicles and gangrenous spots. From the fluctuation, it was evident that it contained a fluid. From these appearances and our general want of a remedy for Spina Bifida, (to which I considered this very analagous,) I felt at a loss how to proceed. Compression, as proposed by Mr. Abernethy, or making fine puncture for the purpose of evacuating the tumour, as practised by Astly Cooper in the case of Mrs. Little's child, seemed neither of them adapted to the present case.

I grasped the tumour with both my hands and compressed it considerably, but there was no sensible diminution of its bulk, or alteration in the sensibility of the child. Hence I concluded there could be no connection between the cavity of the tumour and that of the head, and resolved, (whatever might be the result,) to remove it, and accordingly did so, saving enough of the scalp from the tumour to cover the wound. The three arteries before mentioned were divided, but the hemorrhage was extremely small, and the wound healed immediately. The child seemed to suffer but little from the operation, and has since been perfectly active and healthy. The operation was performed on the eighth day after the child's birth. This tumour was a "Meliceris," and appeared to be formed by an elongation of the scalp. It contained within its cavity, a pound and eight ounces of honey like fluid, which coagulated and became very thick after standing at rest about half an hour.

ARTICLE VI.

OBSERVATIONS ON THE STUDY OF

NATURAL HISTORY;

By John P. Foote.

THE general importance and practical utility of the study of Natural History, is not sufficiently understood by the mass of mankind. The different branches of this science are too frequently spoken of in a light and sneering way, not only by the vulgar, but by many whose literary acquirements and natu-

ral acuteness would lead us to expect from them a more correct appreciation.

Those who devote themselves with ardour and perseverance to the task of acquiring a knowledge of the different kingdoms of nature, are generally considered as mere collectors of plants, insects and minerals, for the gratification of a childish curiosity; as wasters of time, who confer no benefit on society. The advantages which have accrued to the world from the various discoveries in Natural Science, are indeed acknowledged when pointed out; but the steps that are taken to add to these discoveries, are, from a want of attention to their aim and tendency, treated with undeserved neglect, if not with contempt. The opinion is too common, (and acted upon if not avowed,) that it is a waste of time and talents to devote much attention to any pursuit that will not bring in an immediate return of profit. The additions which have been made to national wealth and individual comfort by those whose labours are so lightly treated, seldom occur to the minds of those who are enjoying the benefits of them. The defect of a correct publick estimate of the value of any object, represses the ardour of those already engaged in the pursuit, as well as of those who may wish to imitate them.

It is equally praiseworthy and patriotick, to endeavour so to influence the natural desire for eminence and distinction in society, which is common to most men, that it may seek its gratification in pursuits tending to the good of mankind by increasing the general stock of knowledge. In our country, where the absence of hereditary honours makes it necessary for each individual to acquire for himself the distinction which he covets, this is particularly desirable. From the pacifick tendency of our political institutions, there is fortunately little offered to the hopes of those desirous of military glory—the most numerous class of the ambitious. It is our peculiar happiness, that a state of peace is not only best adapted to the spirit of our institutions, but that the temptations to depart from it are few. The economy and simplicity of our government, are such as not to allow many to be gratified by honourable stations in publick service; and the principle of equality which prevails, while it lessens the number of objects of political ambition, increases to an immense extent the number of those who are

qualified to enter into competition for them. One of the evils which serves in some measure to balance the great benefit of this state of things, is the danger that this desire of distinction may too often be led to seek its gratification in the acquisition of wealth and in the display of pride, pomp and luxury, for which wealth affords the means. The corruption and ruin of any commonwealth is rapid and certain, in which wealth and its concomitants are the chief objects of pursuit and in highest estimation. It is therefore of the utmost publick importance, that the attention of the ardent and aspiring be directed to a more praiseworthy object.

The pursuits of science offer to such, a wide field for exertion, and its rewards are honourable and satisfying. It is lamentable to see so many in our country wasting talents in the bickering animosities of party strife, which, if devoted to scientifick pursuits, would raise their possessor to a higher and safer eminence than that to which he is aspiring—frequently in vain. Instead of the perpetual heart-burnings, fears, vexation and strife of party violence, with the alternate praises and revilings of a heartless and factious rabble, they might obtain the consciousness of having added by their efforts to the general happiness of mankind—the esteem and grateful remembrance of the wise and good of all succeeding ages and all countries, joined to that heart-felt delight which always accompanies every increase of knowledge. The best feelings of our nature would be gratified and improved by associating with those whose chief aim is to advance the interest and happiness of their kind, instead of being soured or deadened by continued communication with office-hunters and unprincipled demagogues.

Of the relative importance of Natural History compared with other sciences, we shall not speak in this place: of its positive importance we are convinced, and desirous to see the wide fields for action which are to be found in different parts of its extent, filled by men of zealous and enlightened minds.

Of the Natural Sciences, none have been so much the subject of ridicule as Geology and Mineralogy, and none are less deserving of it.—The neglect and ignorance of them among educated men, is a much fitter subject of ridicule. It is well known to all in this country, that a great deal of labour and

large sums of money have been wasted in search of the precious metals, in situations where a slight degree of knowledge on these subjects would have manifested the hopelessness of the search; indeed the instances of loss of time and money in searching for these metals in situations where they never occur, are so various and frequent among all classes, that it would seem as if some knowledge on these subjects ought to form part of the education of every individual. Their utility to the agriculturalist will readily be perceived, and there is but a very small portion of our citizens who are not at some period of their lives engaged in agriculture.

Among the insect tribes many have formerly been discovered which are of vast importance in medicine and the arts, and it is highly probable that further investigations may bring to our knowledge many others of equal importance. We know that many diseases are caused by insects, and knowing their natural history, can easily and with safety furnish the remedy; some diseases, of whose causes we are ignorant, may possibly be occasioned by other insects, our ignorance of which prevents us from adopting the most suitable method of treatment.

Zoology is viewed in a more favourable light than perhaps any other branch of natural history. The advantages derived in various ways both from wild and domestic animals, are manifest to all classes of people, and great attention has been paid to all the sources of profit which they afford; still, however, much remains to be done, and the domestick œconomist stands in need of the researches of the naturalist, to direct his care and attention to the most suitable means of accomplishing his objects of profit or convenience, to instruct him to what extent certain animals ought to be propagated, to teach him the influence of soil, climate and habits upon them, to note the consequences of the destruction of certain species of animals, and to shew where and how new benefits may be derived from the introduction of others. It is important to know the manners, habits and properties of all organized beings; otherwise we do not know, when endeavouring to exterminate any species of offensive animals, whether we are not destroying what may preserve us from animals still more offensive, or what may by the aid of science and art be made useful.

The utility of Botanical Knowledge is so obvious that it

may be thought unnecessary to urge any considerations in its favour; but it is not an uncommon opinion, that in this science as much has been done already as is necessary, that all its objects which are of any importance have been observed and their uses pointed out. But supposing this to be the case, (which is very far from the fact,) the modifications and improvements which may arise from soil, cultivation, climate &c. will require for their knowledge and explanation, more labour and attention than are likely to be bestowed upon them during any period to which we can look forward.

In this Western country such changes have occurred within a few years, that the relative value of our customary articles of produce is entirely altered; and the researches of the Botanist may be advantageously employed in ascertaining what new articles of cultivation can be introduced among us with profit, and whether greater attention is not due to some that we already possess, but have too much neglected.

Such studies can never be exposed to ridicule from rational minds. The errors, follies, and extravagancies of some teachers, have been perhaps deservedly laughed at, such as mistake the compilation of nomenclatural dictionaries for teaching science, pride themselves on refuting the arrangements of others, and yet do nothing but pile up masses of barbarous terms which some succeeding arranger shall overturn, if they do not of themselves tumble into ruins. It is not surprising that many young persons should be deterred from commencing studies *which require great labour to acquire the technicals*, and a long time before they resolve what system to pursue. A naturalist is a proper subject of ridicule only when he is found continually cavilling at the faults of *old systems* and offering *new ones*, instead of promulgating truth and instructing the ignorant: when he appears more delighted to discover an error in a fellow-labourer, than in the investigation of facts; when he *appears to take pains to render the aspect of philosophy inelegant* and repulsive, in order to shew his knowledge of every thing except his immediate subject. If Natural History be freed from these incumbrances and clothed with simple and appropriate drapery, like a truly beautiful female, she presents attractions to every eye.

In all ages except those which have been emphatically

styled "*dark*," this delightful study has been recommended and pursued. Yet it cannot be denied, that in its origin, like almost every thing else, it was too much enshrouded with the misty veil of fable. Misled by the desire to awaken surprize and excite admiration, the early naturalists delighted in offering relations which were devoid of truth, and giving exaggerated descriptions, shocking to common sense. The plain and every day occurrences of nature, were disregarded, while stories "of the anthropophagi, and men whose heads do grow beneath their shoulders" were every where to be found and dwelt on with delight.

Time, however, gradually swept these follies to oblivion. Mankind began to perceive that although such relations might astonish the simple and credulous, *truth alone* gives value to any work; and though the temporary effects of wonderful description might be great, they became less and less perceptible, and faded away as sober reason regained her proper dominion.

A taste for those lighter kinds of literature, whose chief object is to contribute to our amusement, is diffusing itself among us with sufficient rapidity, and it is desirable that it should be cultivated to a certain extent, but a preference should always be given to the more useful sciences, and when the mind is sufficiently strengthened by them, other subjects may receive their due share of attention, without fear of engrossing more than belongs to them, and without danger of enervating the mind, and unfitting it for the important concerns of life.

ARTICLE VII.

GEOLOGY OF THE

FALLS OF THE OHIO;

By James Flint, Esq.

Communicated for the W. Q. R. by Daniel Drake, M. D.

In compliance with a request made by you, I shall now note down such particulars respecting the Falls of the Ohio as have come under my observation during my residence here, and will also notice some facts that seem to illustrate the formation of the alluvial land in the valley of the Ohio.

The rocks that here obstruct the navigation of the river are in the shape of a reef or dam, upwards of a mile in breadth, that stretches obliquely across the direction of the river in a south-west and north easterly direction. This rock is of limestone, and like others in the western country, is composed of regular horizontal strata; there are, indeed, some irregularities on its surface, but these are not formed by convolutions, but by the absence or discontinuation of some of the upper strata in some parts. On the Kentucky beach, for example, the surface of the rock is only about three feet above the level of the lowest stage of water at the head of the rapids; whereas on the Indiana shore, its surface is about twelve feet above the same level. Similar inequalities have been discovered in land, by borings in the line of the Jeffersonville Canal.

The rocks of the falls are literally studded over with the reliquiæ of animals antecedent to the present race; the remains being chrystalized and harder than the imbedding limestone, oppose a stronger resistance to the dilapidations of the river; the rock is ground away while the organized bodies are left protruded as in relief; many of them are nearly detached, and others are occasionally separated and swept off by the current. The great extent of rock exposed to view, and the vast quantity of figured substances lying prominent on the surface, render this place one of the most interesting fields to the naturalist that can be imagined. The following are abundant.

Madrepora, Turbinated, Fascicularis, Ananis, Favosite, and Ammonites of large size.

Millipora, Ramified, and Elongated.

Tubipora, Ramose, Musica, Catenulata, (chain coral.)

Terebratula, Several species.

Encrini, Ramose, Elongated, and with a slip or dislocation.

In addition to the above, a Trochite of a species resembling the Delphinula, a large Trigonia, and a Trilobite in a contracted situation may be mentioned of more rare occurrence. Nodules of Hornstone containing Encrinites, Chain Coral and Bivalves. Martial Pyrites are exposed on the surface. but as they are pratially *sulphatized* it is not determined whether they were originally figured. From this communication you will conclude that the rocks are of the third Floetz Limestone in the Wernerian arrangement.

In Juxta-position with the dam or wall that forms the falls, a thick bed of bituminous shale has formerly lain; through this, the river has recently cut its way. A gentleman who was one of the first settlers in the neighbourhood has told me that on his first arrival, the slate lay about a foot in thickness on the bed of the river below the falls; the layer is now removed, and the upper stratum of the limestone, on which it reposed, is removed in various parts. The edge of the schistose-mass is to be seen in the Indiana beach, from the falls downward to New Albany: it has intermixed, alum-slate and Pyrites. It is evident, that at a period not remote, the falls of the Ohio exerted their force on rocks much farther down the river than their present place.

The principal course of the river over the rocks is near the Indiana shore, where a deep gut is worn out from the lower edge to near the upper extremity of the obstruction; when this gut is cut quite across, the level of the surface of the water above the falls will be lowered. Geologically speaking, the time is not far distant, when the falls of the Ohio will desist from warring against rocks no longer able to withstand their fury; they will march upward in search of a new encounter; Louisville, Jeffersonville and Attica will be left in the rear.

Immediately above the falls the river is deep; in some parts no less than twenty-four feet at the time of lowest water; it would seem that here, too, a bed of schist had existed; with whatever soft material this chasm was once filled, it has been scooped out by the joint action of the stream in freshes, and the draught or suction of the falls. The same operation is active to the present time; stones, gravel and sand, are by a strong revulsion raised over the upper edge of the rock, and then hurled over the falls by the swift current. Without this means, the place occupied by deep water had been filled up by earthy matter; without this *modus operandi*, rivers had never exhibited the bars, islands and pools that give so much diversified beauty to their beds, and so usefully check an accumulated velocity that would otherwise be hurtful to navigation, and destructive to the dry land. The passage of stones is a subject that has been offered to the attention of those who would open a canal with its mouth at the head, and in the very suction of the falls.

The valley of the Ohio, at the falls, as elsewhere, consists of two sorts of bottom land; one called the lower or first bottom, and the other the higher or second bottom; the lower bottoms are uniformly adjacent to the river, and are in most cases subject to inundation during freshets: in parts where the river is wide, or where the current is swift, the lower bottoms are lower than where regulated by the contrary conditions; the bottom betwixt Louisville and Shippingport is a striking example. There is usually low bottom land on one side of the river, and sometimes on both.

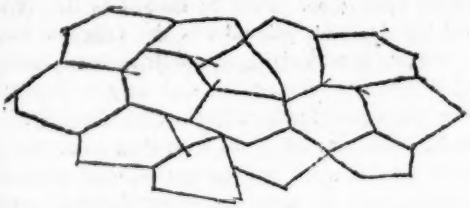
The higher bottoms where they lie behind lower ones, are separated from the latter by a step or bench; the difference of their height may usually be found from sixteen to thirty feet. In many cases the river has the higher bottom land for a beach on one side, where all the lower bottom land is situated on the other side of the river. On the whole, it would appear that the lower bottoms are the most recent alluvion, and formed by such freshes in the river as frequently occur in the present times; there can be no strong objection made to this position; it is true that some, lower bottoms are above all freshes that have happened since the settlement of the country. but it is to be considered that the bottom of the river in such parts may have lately become lower; add to this; it may have happened that freshes unknown to us may have risen a little higher than any late one.

The higher bottoms have for their lower stratum a thick bed of gravel, over this sand, next clay, and uppermost a coating mixed with vegetable soil. Seeing that this flat land lies all along the river, maintaining nearly an equal height throughout, and that it has every where a steep bank or hill in the rear of it, separating the valley from the higher country inland, the mind is instantly led to believe that the higher, as well as the lower bottoms have been formed by the Ohio. All who have attentively observed the phœnomena of rivers know that the larger stones, though they may be carried along by the current, keep in the deepest parts of the channel: that where these may be accumulated, the depth of water and consequently the velocity of the stream are diminished; gravel next succeeds, the depth of water and velocity are further diminished; and the main current deflected from the gradual erection; the

process continuing, sand, next clay, then mud, and lastly floating vegetables are laid on the summit; plants are disseminated, these grow up, and on the occurrence of higher freshes detain muddy sediment and floating bodies, thereby accumulating a rich and a fertile soil. This is the manner in which bottom land and islands are raised to the surface of the highest floods.

I have already mentioned that by means of borings in the line of the Jeffersonville Canal, it was found that the rock is irregular or uneven in its surface; the extreme difference discovered was found to be about twelve feet: It is further worthy of notice that the higher parts of the rock were covered with the greatest thickness of alluvial soil: it would seem that gravel had been soonest deposited on the high rock where the depth of water, and of course the velocity of the stream must have been the least; as the gravel bar increased, the current must have been deflected from it till at last the old loop or *bayou* of the river was altogether filled far above the level of low stages of the water. This conformation of surface does not agree with the supposition that the higher bottoms were deposited from a lake, of which more will be said in the sequel.

Other proofs that the higher bottom land proceeded from freshets in the river were exposed to view in the digging of the Jeffersonville Canal; on many occasions where the clay that overlays the gravel was cut horizontally; a complete system of septaria were observed, thus



You can have no clearer description of the Septaria, than by being referred to the mud that is deposited on low ground, or on the beach, by the freshets of a river:—when the mud is dried by succeeding hot weather, it is contracted and cracked with such lines as I would now convey an idea of; the cracks were filled with a clay of a lighter colour and a finer quality than that of the polygonal compartments.—The lighter coloured

clay seems to have been poured into the interstices by the next succeeding freshet, and at an early period of the inundation, while the old deposit was but thinly covered with water, so that the current was gentle, and nothing but pure or very volatile clay could be dispersed through the water. One stratum of septaria was about two and a half feet deep, and several strata were observed in super positions; the different layers no doubt mark themselves as the precipitations of different inundations.

At the depth of seven feet from the surface I found an Indian arrow-head; and a parcel of Beech leaves at nearly the same distance from the surface; they were immbedded in the clay. In the lower part of the bed of clay, many balls of a fine blue clay of a strong adhesive quality were found; they were of various sizes, from three to five inches in diameter; to their surfaces were attached many angular particles of a yellow iron-ore, that must have been acquired by the balls rolling along.

The late M. Volney has supposed that the Silvercreek hills, (a ridge that crosses the course of the river below the falls) once formed a barrier that dammed the river upward to the junction of the Allegany and Monongahela, and that during this stagnation of the waters, the higher bottoms were formed.—That this ridge was once an immense dam, I am not disposed to doubt; but the theory just mentioned does not explain the excavation of the valley, a work which must have been performed before alluvial soil could be formed in it. It is well known that the strata on both sides of the valley or trough of the river, consists of rocks lying in a position nearly horizontal, and that individual members of the rock may be distinctly recognized on the opposite hills or banks that bound the hollow-bottom-lands. Whether we resort to Huttonian or Wernerian doctrines, we must imagine that the stratification was once continuous, and lay over the space that is now the long narrow valley through which the Ohio winds her course, and in which the alluvial bottoms are situated. In thinking of the manner in which the chasm has been opened, two ways present themselves; one by convulsion, and the other by the action of the river. If we would adopt the former supposition, a very puzzling enquiry arises. What has become of the detached parts? We look in vain for the scattered fragments on the adjoining

high land, and their native repository is evacuated. If we would for a moment imagine that the loosened blocks remained for a while piled over the place where they were formed; we should be at a loss to discover how they could be carried out of a lake, and over the Silver creek hills which seem to be about three hundred feet high. If the fragments were transported downward after the outburst of the lake opened a gap in the ridge, the lake must have disappeared, and a river must have developed itself whilst this removal of stones proceeded. Here then we must conclude that the alluvial bottoms were not precipitations from a lake, but were formed posterior to its being drained of its waters.

If we give careful attention to several facts already noticed, it will be seen that they are altogether incompatible with the idea that higher bottoms have been formed in a lake.

The circumstance of the higher bottoms having a thick bed of gravel for their lower stratum is perfectly repugnant to the supposition of its having been laid in its present scite by the quiescent waters of a lake; the more so as stones of several pounds weight are occasionally found in it. If it could even be admitted that gravel might be occasionally swept down a lake in times of flood, we should believe that this dense matter would come to rest first, sand next, afterwards clay, and towards the subsidence of the waters, mud would fall down: every fresh, then, would have left such a series; but the grand bed exhibits no such diversity. Were it even assumed that the whole alluvion is the work of one inundation, the stratified structure of the gravel, as it exists, excludes the supposition.

The smoothness and regularity of the alluvial soil, stretching along the river without any striking diversity in respect of height, is itself a most powerful objection to the opinion of M. Volney. It is to be granted that the Allegany, Monongahela, Muskingum, Scioto, Miami, Kentucky, Licking and Kenhawa rivers, and all other tributary streams, would push down and protrude into the valley of the Ohio, during their several freshes, large bars of gravel &c.; but it is not to be conceived that any river could have the power of distributing the stones discharged, regularly over the extent of a long lake, such as the vale of the Ohio is supposed to have been. Adopting the idea that the chasm was once really filled with deep but quiet wa-

ters, we would now reasonably look for vast accumulations of gravel and sand at the mouth of every tributary stream; and for large tracts of clay and rich mould in the intermediate spaces; but as no such appearances are to be met with, it is to be inferred that the Ohio has regulated her banks according to the manner of other rivers.

The septaria observed in the clay of a higher bottom at Jeffersonville, is a plain evidence that the ground here was raised by the ordinary operations of a river. That a lake with a narrow out let, may be a little swoln in times of wet weather, is freely admitted; farther, that a small quantity of mud might be left, and subsequently dried and cracked by hot weather, as we often see by the sides of rivers, but it is not easy to conceive that a lake could precipitate mud to the depth of two and a half feet in one inundation; much less that several distinct strata, marked each with distinct septaria, could be placed in super positions as observed. In rivers the difference of height in inundations, may have a considerable range; but in lakes the difference must always be small, and not capable of depositing many thick layers of mud over one another; besides the tendency of lakes to lower their outlets and to contract their superficial dimensions, leads to their leaving deposits by their margins in *juxta position.*

The balls of clay with small pieces of iron ore attached to their surfaces, seem to have been rolled by a stream; we can see no possibility of their having been floated on the surface of the water, and then sunk, nor of their being rolled along the bottom of a lake.

The division of the alluvial lands in the vale of the Ohio into two parts; one still liable to inundation, and the other far above the present scope of the water, is perhaps a phenomenon anomalous among rivers, and the abrupt step or bank that every where separates the two bottoms, is a legible record of a sudden change in the magnitude of the river. The Ohio in her present condition formed the lower and more recent alluvion, but it was the Ohio in pristine glory, that opened a chasm through the Silver-creek hills, that scooped out the long chasm or valley, and that deposited the higher bottom land.

An enquiry after the source of the vast quantity of water that once deluged the whole vale of the Ohio, naturally brings into

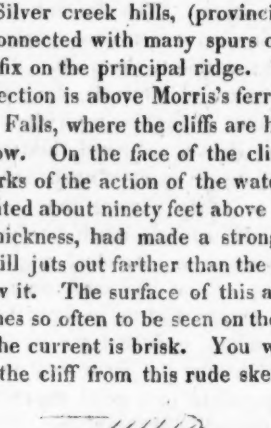
notice the detached and rolled pieces of primitive rocks distributed over this part of the country: the large masses mentioned in the Picture of Cincinnati, are highly illustrative, and favor the opinion that a lake once spread itself over the upper parts of what is now the state of Ohio. The higher beach of Lake Erie, noticed by Mr. Professor Dewey and others, also shew that its waters once stood at the level of the summit of the land immediately south of the lake, and that the overflowings formerly passed into the valley of the Ohio.

It would be interesting to find the height of the Silver creek hills, relatively to the upper parts of the Ohio, and to the sources of the tributary streams that come in from the northward. The surveys to be made in determining the line of navigation from Lake Erie to the Ohio, will ascertain the height of one section of country. The descent of the river Ohio may be determined in a manner at once simple, and calculated to give a near approximation to the truth. A number of persons whose residences are at intervals along the banks of the river, might, at the time of high water, (when the declivity of adjacent parts of the stream are nearly uniform,) each, place two fixed marks, including a space of about two miles between the two. Twenty or thirty persons thus acting in concert along the river, would, without much trouble to themselves, furnish data from whence an individual might afterwards derive valuable results. If, at the same time, the velocity of floating bodies was observed at the several stations, and cross sections afterwards taken, with remarks on the neighbouring irregularities of the bed of the river and on the banks, the whole would be equivalent to a great experiment altogether unexampled in the history of Hydraulicus. Observations conducted in this way would throw light on the remote condition of this extensive region; would give much information as to the means to be pursued, with the probable success in improving the navigation of the river—and would furnish an extreme case very fit for verifying or correcting our formulæ for computing the velocity of running waters.

From the fact that the Silver creek hills stretch across the lower lands of Indiana and Kentucky, with only a single breach, through which the Ohio passes, we cannot refuse the conclusion that this barrier once formed a lake that covered parts of

Kentucky, Indiana, Ohio, and probably parts of Virginia and Pennsylvania. At first sight it might seem that the irregularities of the higher land on each side of the valley of the Ohio, do not correspond with that sort of surface that would be left after the receding of a lake; but the objection is removed by the consideration, that streams of water and the action of the weather must have operated powerfully on a surface newly exposed and not protected by vegetation. Many of the tributary streams have now cut through the soil, and dug deep beds for themselves in the rocky strata—a circumstance the less wonderful since they have had the same length of time to perform their work in, as the Ohio had in excavating the great valley.

On a late occasion I visited the intersection formed by the Ohio and the Silver creek hills, (provincially called knobs.) The chain is connected with many spurs or branches, so that it is difficult to fix on the principal ridge. The part I selected for minute inspection is above Morris's ferry, and about thirty miles below the Falls, where the cliffs are high and the river is unusually narrow. On the face of the cliff I could perceive the plainest marks of the action of the waters; one stratum in particular, situated about ninety feet above low water, from its strength and thickness, had made a strong resistance to the grinding, and still juts out farther than the layers immediately above and below it. The surface of this and many others retains the scratches so often to be seen on the beds of rivers and creeks, where the current is brisk. You will have some idea of this part of the cliff from this rude sketch:—



Amongst the loose blocks piled at the foot of the rock, many were scratched and worn, and some have preserved in them the round pits ground by gravel being twirled round, while they had been exposed to the action of swift running water. On one bench or step in the hill I could discover small pits, the height I believed to be about 110 feet above the water. Here, then, at a vast height above the river, are the marks of a cataract *in situ*. The facts narrated, combined with the inferences deduced from thence, seem to establish the following propositions:

That at a former period a great lake was detained between the Silver creek ridge and the higher lands towards the Allegany mountains, supplied by the watery resources of the Ohio, and those of lake Erie, Michigan, Huron, Superior, &c. &c.; that the extensive tract of country formerly submersed, has derived much of its fertility from the most volatile of the soil of a great region of higher country; that from the summit of the Silver creek ridge a raging cataract poured down the surplus waters of the countries now drained by the Ohio and Niagara rivers! that the great accumulation of waters which once passed over the Ohio country, forced a passage through the Silver creek ridge—the lake ran off and was succeeded by a river; the river still continued to discharge the waters of the Ohio country and of the lake, till it dug out the great valley or trough between the river-hills, and till the higher bottom land in the same valley was formed; that from some cause not yet explained, Lake Erie found a lower vent by the way of Niagara river—the surface of the lake subsided, and the surplus waters ceased to flow through the valley of the Ohio. The Ohio greatly abridged in resources, and no longer capable of overflowing the alluvial plain raised in higher inundations, shrunk from occupying the full extent of her former domains, deposited newer and lower bottoms within the capacious bed of the old river. These have been variously extended and diminished in consequence of more recent depredations committed on the margins of the higher and of the lower bottoms. This is the river Ohio as we now see it.

I cannot, nor do I wish to claim originality in supposing that the Ohio was once a larger river than now, and that the river itself formed the higher bottoms. In January, 1819, Dr. Drake shewed me a manuscript, of which he was the author:

it contained these doctrines. Since then I have been for some time the believing convert of M. Volney, on this subject; but facts that appear to be inexplicable by his hypothesis, obliged me to think for myself. If the particulars related, and the inferences drawn, can be of any use in settling such an interesting point in the Natural History of this country, I shall be fully gratified.

ARTICLE VIII.

AN ADDRESS,

Delivered to an ANATOMICAL CLASS *in the city of Philadelphia, at the termination of a course of Lectures; in March*, 1821.

WHEN the world lay shrouded in mental darkness, and the reasoning powers of mankind were wasted in empty conjectures, or chained by the most inveterate prejudices, the philosophy of induction arose in order and beauty to dissipate the gloom. By the caution it inculcated relative to theories, the mind was prepared to avoid prejudiced or hasty decisions. By the rigid examination of facts the judgment was strengthened and the sway of imagination weakened. By the scrupulous care it exhibited in generalizing from the observations already established to be correct, men were taught at once the folly of rash doctrines and the injuriousness of presumption.

Such is the constitution of man, that he is continually verging toward extremes. From being rash and credulous he becomes wary and prudent, and it would be well for him if he rested here. His next step is to become hesitating and doubtful until he is bewildered by the plainest facts, and he is so far misled as to imagine absurdities true, or attempt establishing things the most ridiculous. He does not attain to this extreme, until he has lost sight of the correct system of philosophizing in the eagerness and pride of his knowledge. But once having overstepped the boundary and advanced into new and unexplored regions, he rushes forward heedless of all the obstacles that may oppose, and proceeds until he is so entangled that to return is more difficult than to advance.

Such is the manner in which some of the most celebrated errors in Philosophy have been introduced. Arising primarily

from ignorance, pride and false reasoning, they have been upheld because of their speciousness, or because they were flattering to some of the lowest propensities of our nature. Under the guise of a continued appeal to fact and reason have been concealed the most wanton attacks on the common sense and common decency of mankind. Drawing the mind artfully into an acquiescence with a particular sentiment, because the sentiment appears to be the consequence of an irrelative fact stated in the beginning.

The science of Medicine has not suffered a trifling injury in this way. It has been made the instrument of throwing on the world at large a flood of errors, which, like the inundation, are not less injurious from their immediate extensive injury, than from succeeding consequences: first bearing down all that is in the immediate way of the current, and afterwards poisoning the air around by the noxious vapours arising from the lately covered surface. The science has not only been made the instrument of injury, but it has, as a result of the same cause, exposed those who profess it to some charges, which weigh heavily upon their reputations. It has been accused of leading its members to doubt some of the most interesting truths which are connected with the history of man as a moral and social being. It is therefore necessary that we who are about to single ourselves out to discharge the high duties which are attached to the name of Physician, should examine carefully the opinions we adopt or receive.

If we look into the works of nature, by which we are surrounded, and examine their histories or qualities, we discover them always presenting the same appearances under similar circumstances: always acting on each other in the same way; always possessing the same distinctive characteristicks. This leads us directly to the inference that the plants, the animals, and minerals we are acquainted with, are ever the same in their great features. It teaches us that these have, with the slightest accidental variations not at all affecting the general condition, been continued from time immemorial to the present. —We find the various tribes of animated nature continuing their species in regular progression, and never by length of time nor frequency of repetition, changing into animals of different character.

In a lecture delivered to you on the subject of Life, as well as in subsequent lectures, I have informed you that many strenuous efforts have been made to establish a belief that man differs only in organization from other animals. These theories are generally brought forward by the members of our profession, and are suited to produce a more injurious influence as the members of our profession have the greatest opportunities of influencing society. It is strange that an apparent love of truth should lead to so much error, that a philosopher who in other respects is generally possessed of a full share of pride, should humble himself to the opinion that he differs very little from the beast of the field. Yet love of truth appears to be not the only agent in causing this. The lower propensities of our nature, are such as every man feels to be degrading and unworthy, and his indulgence of which he would fain be rid of, by throwing the burden on the physical constitution.

To establish this maxim of the modern schools of Philosophy, sophistry is used to mislead, where a direct appeal to reason would be sure to overthrow. A few irrelative truths are chosen for a foundation on which to erect an unsubstantial fabrick, whose decaying materials are concealed by a covering of gilded ornaments. The mind is not shocked by the statement of a proposition that every one would revolt against. It is gradually lured onward; the way is strewed with flowers under which the venom of reptiles is too often concealed. We admit the truth of some of the first assertions;—we give confidence to many reasonings, till, before we are conscious of the length we have gone, we have yielded ourselves fairly to the creed of the writer.

"Man," says Delamethrie, "belonging to the family of the *apes*, was originally covered with hair like them; he inhabited warm countries and lived only on fruits and seeds and sometimes herbs when these were deficient."

You might suppose that this opinion was stated in ridicule—that the writer wished every one to be aware of his folly; yet I assure you, gentlemen, that this is gravely stated and gravely maintained by the celebrated member of the Institute. The whole of his beautifully written works tend to maintain the same opinion. He is one of the few writers who has laid aside the mask and dared *openly* to state his belief. Though this be

so, it is not the less taught and insisted on by the great body of philosophers on the continent of Europe. It is differently presented by all. You will find it mingled with the sweetness and beauty of Rousseau—arrayed in the variety, richness and vigor of Voltaire—glimmering throughout the misty metaphysicks of Kant and Helvetius; or grinning horribly amidst the misanthropick sneerings of Godwin. In Cabanis, it is *physiology*—in Delamethrie, *morals*; in Gall it is *phrenology;* and in the whole tribe of Sophists it is POISON. By turning on our organization the faults of our education and excessively indulged appetites, it gives the rein to the unruliness of human vice—it breaks down the barriers of virtue—reduces the order of society to a state of systematized hypocrisy, and takes from life and happiness all the charms that give them value.

It is not necessary to reason much on this subject. Every man's reason is sufficient to convince him that men were never apes, or we should have men continually undergoing similar changes. Nothing but the imagination of a sophister can fancy a period when man was changed from an ape, any more than apes were changed into hogs or bulls. It is an insult on common sense to waste time in refuting such propositions.

"But," says the same Delamethrie, "that which renders the man of nature, (the *ape,*) more happy than civilized men, is, that the first enjoys the *present* without thinking of the past or looking forward unquietly to the future; for that which most disturbs the happiness of social man, is his restless anticipations of futurity, and these continual revertings to the past. The ape has a great mass of enjoyments: inhabiting a delightful country, he experiences continually an agreeable temperature. The soil furnishes him with abundant nourishment; he has neither pains nor fatigue. Listlessness never seizes him—he diverts himself with his mates.—His days glide away in stillness and serenity, undisturbed by disease. He arrives at his last hour without having foreseen it. By consequence, he knows not this terrible idea of death, which pursues social man even to the midst of his joys and pleasures."

Here gentlemen, is a full display of the great object of this philosophy. It is to place us on a level with the brute, and to insinuate the superiority of brutal enjoyments over those of man: to teach us that we are but beasts, and that as our or-

ganization is the cause of our actions, so we are not accountable for them. The supreme good is placed in sunshine, food and bodily enjoyment; and of necessity, every thing which tends to this end is justifiable and proper.

In all these books you will find correct philosophy deserted, and the aim of the writer is to lead you *from* particulars, endeavouring always to deal in general assertions. You are to be guarded against this, and to examine cautiously every sentence to which your assent is required; so artfully are such books generally contrived that the reader has no idea of the conclusion to which he will be ultimately led.

—And are *we* to be told that bodily enjoyment is superior to intellectual? That the passions which assimilate us to the beast and the reptile are higher and more estimable than those which lift us toward heaven? Is the enjoyment of sunshine and inactivity; of food obtained without labor, and devoured without appetite, to be compared with the pleasure resulting from a consciousness of well directed industry and usefulness? Is the dull stagnation of a creature which lives only in, and for the present, without a thought or a wish for the future, to be named with the feelings, which call us to act for coming time, and hail it by anticipation? Shall the child of genius no longer walk forth to contemplate his GOD, in the wonders of the heavenly world—or feel his bosom throb with unutterable emotion as the careering flash of electricity causes earth to vibrate to her centre? Yea! is man to lay down in the dust and perish and be no more? Is the spirit whose promptings lift him in aspiration beyond the zenith of the farthest star to be quenched when the frame he inhabits is prostrated by death? Oh! no! "The soul secure in her existence" *shall* outlive "the wreck of matter and the crush of worlds."

I have frequently stated to you the necessity of establishing your opinions on this subject correctly. I will now repeat to you that no man should be admitted in a family as a physician who is not persuaded of his responsibility to a higher power than a human tribunal. Which of you would be willing to trust the wife of your bosom, or the daughter of your love, to the care of one who owned no law of restraint on his inclination? Surely there is not one of you who would willingly place either in so perilous a situation.

There is another subject to which you should attend; as physicians you are to be continually engaged in competition with your fellows, and it is right that you should. Gentlemen! Let us all be rivals. We are all struggling to gain that eminence where the rays of glory beam resplendent. We are endeavouring to scale those arduous heights where "Fame's proud temple shines afar!" Let us on! but never forget that we are to rise by our own strength, and not the weakness of others. We are to appear fair and bright, not by blackening our neighbours that we may show better by the contrast, but by the excellence of our own qualities. Acting thus, and bearing ourselves as men of spirit ought to do, we have nothing to fear. We may be as we should

Rivals to every man—Enemies to none.

ARTICLE IX.

MISCELLANEOUS.

AMERICAN INTELLIGENCE.

Dr. North, of New-London, has proposed a new mode of operating for the Stone, which he thus describes:

"A suitable table of convenient height and breadth is to be provided, and from the legs of the same let there be projections of wood at one end. These projections should form a right angle with the legs of the table, and may be about the length of the patient's legs—the distance from the uppermost surface of the table, at which these projections of wood should be attached to the legs of the same, may be ascertained by measuring the length of the patient's thigh.

"The table and every thing else being ready, and the previous operation of introducing the long grooved staff being finished, and the staff being secured in its proper situation by the hand of an assistant or other means, the patient may now be put on the table upon his belly, in the kneeling posture, his knees and legs resting upon the projections of wood above mentioned—his thighs should come in contact with the legs of the table—his thighs and legs may now be properly secured in this situation—the penis and staff should hang downwards near to, and

over the edge of the table. The patient's arms may be brought downwards in contact with the fore-legs of the table, and there secured. The fore-legs of the table should be shorter than the hind ones, so that the patient's body may be thrown into the position of the *inclined plane*. His head and face may rest upon a pillow.

"If we have expressed ourselves so as to be understood, the reader will perceive, that this position is essentially the same as the one in common use for performing the operation of cutting the *fistula in ano*. And a moment's reflection will, we think, show, that the same position may be proper either for cutting into the bladder through the prostrate gland, or for cutting into the rectum, as these parts lie in contact.

"A suitable low seat will enable the assistant surgeon to manage the long staff. The operator will be conveniently seated posterior to the patient between his legs. He will now have all the parts on which he has to operate in a proper position for that purpose. He may then make the first or external incision precisely as it is now done, by the best surgeons; and also slit up the membranous part of the urethra in the usual manner, cutting into the groove of the long staff. The common female grooved staff may now easily be introduced into the bladder, taking the groove of the long staff for a guide. This last instrument may now be withdrawn, as the surgeon can have no further use for it. Or if the surgeon dislikes the female staff he may furnish himself with a director made like the common grooved director in every surgeon's pocket-case, only a little longer and having a suitable beak at one end, to facilitate its introduction upon the groove in the long staff. All we insist upon is, that the groove in this director should be straight, as every one knows, who knows any thing on the subject, that it is much more convenient for the surgeon, and, we believe, much safer for the patient to carry forward any cutting instrument in a straight direction than in a curved one. It can hardly be necessary to mention that this almost straight director, (the beak part being a little curved,) should be introduced with an alternate kind of motion by which the urethra will be gently stretched from side to side, greatly facilitating the introduction of such an instrument. By turning the groove of this director to one side, the operator is enabled to make, with almost any

kind of knife, the true lateral incision in the prostrate gland and neck of the bladder. It may be done very well with the common gorget, the beak being ground off, provided he can use that instrument with his left hand.

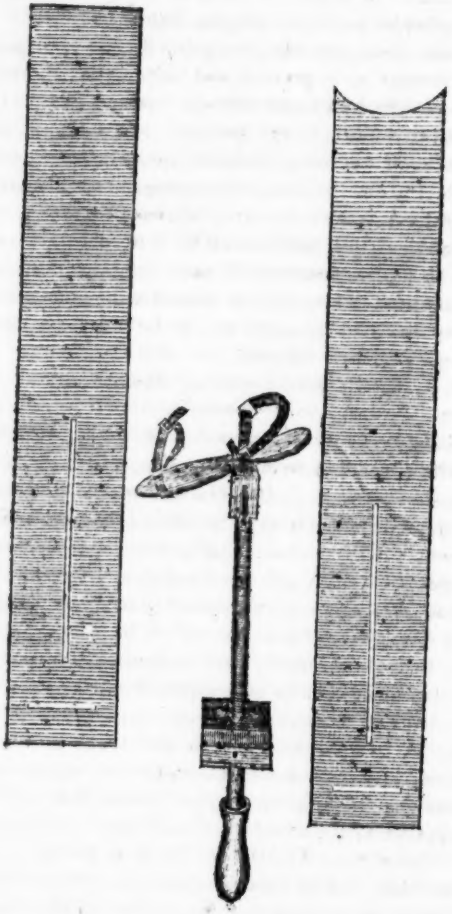
"The advantages obtained by introducing the straight director, are these—it brings the hands of the operator nearer to each other when he makes his incision into the bladder. This gives him more steadiness—he also gains the power of pressing down the bladder at a greater and safer distance from the rectum—it enables him to introduce a common scalpel, if he prefers that instrument to the gorget. The knife, however, should be of sufficient size to make the opening in the prostrate gland and neck of the bladder, large enough to admit the finger, as the operator may want to carry in a smaller knife, turned flatwise upon his finger, with which he is to enlarge the wound by *lateralizing* the instrument. It may be proper to mention that it is contended of late that the wound in the prostrate gland and neck of the bladder ought not to be too large, lest the *prostrate fascia* might be injured.

New-England Journal of Medicine and Surgery.

Improved Apparatus for Fractures.—A friend has politely favoured us with a model of an improved Apparatus for Fractures, by that eminent Surgeon, Dr. Hartshorne, of Philadelphia, which we present with the more pleasure to our readers, as we have not seen any account of it published. Its great advantages over ordinary splints, are the simplicity of its construction, the ease with which it may be applied to the limb, and the facility with which the extending force can be lessened when the feelings of the patient render such diminution necessary.

It consists of two splints of unequal length, having each a perpendicular and transverse mortise corresponding to two tenons on the two blocks, through the lower of which the screw passes, and is fixed into the upper, on which is a flat board answering in shape to the sole of the foot. The long splint is applied to the outer side of the limb, reaching above the great trochanter. The shorter splint is placed on the inside of the thigh, and its concave extremity covered by a pad, is fixed against the perineum. The straps on the foot-piece, are crossed over the foot, and the tenons being placed in the

corresponding mortises, the extension is made by turning the screw below. This can be very gradually tightened until a sufficient extension is made; a single turn of the screw in the opposite direction will suffice to remove the extension when it is too painful.



EFFECTS OF DELETERIOUS EFFLUVIA UPON THE ANIMAL ECONOMY.

An interesting paper "on the effects of deleterious effluvia upon the animal economy," was read during the last winter before the Philadelphia Medical Society, by J. C. Rousseau, M. D., in which he attempts to prove by many well conducted experiments, "that the *Schneiderian* membrane is the vulnerable point by which the baleful influence of contagion is received and transmitted to various parts of the animal system."

Experiment 1st.—A professional gentleman with whom I had several arguments on the present subject, unwilling to concede that the sensual pleasure derived from eating and drinking resides entirely and exclusively in the olfactory organ, consented to trust his conviction to experiments. He was, for this purpose, blindfolded, and his nostrils rendered impervious by compressing them between the fingers. In this state a small lump of camphor was put in his mouth, and masticated for some time: unable to determine the nature of the substance acting then solely upon his tongue and palate, he declared it to be a piece of crumb of bread with pepper on it.

Experiment 2d.—A medical gentleman still more averse than the former to relinquish his fixed opinion, volunteered himself to perform a similar experiment.

Having previously been blindfolded and with his nostrils well secured, a small portion of assafœtida was substituted for the camphor used in the preceding experiment, and put in his mouth. He turned and turned it again between his tongue and palate, and exultingly exclaimed that it was camphor.

His mortification cannot be described on finding himself so severely disappointed when he was restored to the exercise of the senses he had momentarily been deprived of.

Several persons of the company tried a number of experiments with different wines, cheese, and many other things, and were convinced of the correctness of the observation.

Experiment 3d.—The emanations of several essential oils were inhaled through the mouth exclusively, without communicating sensations capable of giving a knowledge of their particular quality. But as soon as the breath was returned from the lungs, through the open nostrils, the discrimination was made.

Does not this last experiment show, that the lungs possess only a feeble power of decomposing emanations remaining for some time in the bronchiæ?

Experiment 4th.—Much having been related of the active effects of tobacco applied to the surface of the body, I was induced to try whether the nausea and vomiting produced by such an application, are owing to an absorption from the skin, or to the action of the ascending fumes upon the pituitary membranes, or to a mixture of the volatile particles with the blood, through the medium of the pulmonary organs.

I resolved to make a few experiments to ascertain the truth, and at the same time, to enable me to assign the real cause with some degree of certainty. A stout Irishman, unapprised of the intention of this experiment, was hired for the purpose. His nose was made impervious, with lint, secured by adhesive plasters. A bath of a strong decoction of tobacco having been previously prepared, he was put, and remained in it, up to the navel, for one hour and a half, without evincing the least symptom of nausea, or any other uneasiness—whereas, the bystanders, called to witness this experiment, laboured under such a degree of nausea as to be put to the necessity of leaving the room, and some of them suffered from severe vomiting.

Experiment 5th.—A child upwards of seven years old, was plunged up to the neck, and remained in a bath of the same kind for two hours, his nose being secured, and suffered so little inconvenience, that he ate cakes during all the time.

Experiment 6th.—A lady of a delicate constitution, extremely prejudiced against the smell of tobacco, having repeatedly been sickened by the breath of gentlemen chewing this vegetable, struck by the relation of such singular facts, was induced to try some experiments. She first convinced herself that when her nose was closed, there was nothing nauseous. A quantity of tobacco leaves having been put in a large pan, with a gallon of water, over a chafing dish, and suffered to boil for some time, she breathed the fumes through her mouth, holding her nose with her fingers, for half an hour, without experiencing the least nausea, or any other disagreeable sensation.

Experiment 7th.—A child three years of age, labouring under a violent coryza, which placed him under the necessity of

breathing exclusively through his mouth, had a poultice of tobacco leaves applied upon his belly. It was kept all night without producing any apparent derangement.

Experiment 8th.—A labouring man, not remarkably abstemious of spirituous liquors, was persuaded to try the next experiment. A quantity of good spirit was poured into a large copper pan, and kept warm, by means of a chafing dish placed under it. His nose having previously been stopped with lint and adhesive plasters, he was desired to stand over the pan, and breath the rising steam through his mouth. In this situation he remained above one hour, much deceived in the treat he had anticipated, having experienced no other sensation than a smarting of the throat. I tried, myself, the same experiment, breathing for one hour and an half the fumes of the liquor, and found the same result.

Experiment 9th.—The next day, with a view of making a counter experiment, to ascertain the truth of intoxication having been effected, as it is reported, by exposure to spirituous emanations, the same individual was desired to repeat a similar process, with open nostrils. He had scarcely remained half an hour over the liquor, when he begged to be excused, declaring that he felt so giddy that he did not think he could stand, and actually staggered in going to a chair.

It seems to me quite unnecessary to consume time in relating a number of other experiments, all tending to corroborate the same facts, and feeling fully satisfied, that every reasonable and unprejudiced mind will join me in the conclusion, that the symptoms generally attributed to an absorption of deleterious effluvia, or to their admission into the stomach, after mixing with the saliva in their passage through the mouth, are simply and exclusively the result of their action upon the membrane of the nostrils and the olfactory nerves—and that in those cases the stomach is only affected secondarily by sympathy, or agreeably to a law of the animal economy, which we, although unable to explain, are compelled to admit, from the evidence of our senses.

From the above results, presuming that they hold good in all cases, might we not infer, that the Schneiderian membrane is the vulnerable point, by means of which the baneful influence of contagion is received and transmitted to various parts of the

animal system? Miasmata must essentially exist under a form susceptible of being carried by the atmosphere, the common vehicle of subtle matter, and therefore unavoidably and constantly come in contact with the internal surface of the nostrils. The stomach, on the contrary, to which they could only be conveyed by a mixture with the saliva, or by absorption through the lungs, can scarcely experience any such influence. In numerous instances too, the effect is so sudden, that it cannot with plausibility, be referred to any of these latter sources, as we shall have presently occasion to demonstrate.

If I have taken a correct view of the subject, and satisfactorily ascertained the organ primarily affected, the use of scented bottles, volatile salts, aromatic vinegars, and a number of other active substances, intended, and calculated to exert their influence upon the membranes of the nose, cannot appear altogether destitute of salutary consequences, especially if we advert to the regular train of our sensations; for it will then become evident, that the application of a new stimulus to an organ, seldom fails to disturb or subvert its regular functions, from which we may presume that the sense of smell, under the constant influence of the repeated and compound action of various stimuli, eventually breaking the natural link of associations, receives impressions extremely different, and may thus be partially or totally disqualified to transmit the effects of the baneful emanations—supposing that the mixture with the volatile drug was insufficient to neutralize them.

This is, I think, fully exemplified in the act of taking snuff, where the mechanical action of the powder being stronger than that of the effluvia or aroma of the plant, upon the membrane of the nostrils, it becomes preponderant, by which a nausea is prevented, though the diaphragm, the abdominal muscles, and, we may say with exactness, the whole frame is roused to a violent momentary convulsion. The same phenomenon would take place, if at the time the open nostrils are exposed to a nauseous emanation, they were titilated with a feather, or acted upon by a stronger stimulus than that produced by the emanation.

This law, as far as I know, will be found to hold good in the greater number of our sensations, which generally appear to be in an inverse ratio of the intensity of the stimulus, and it is

also not only corroborated by daily experience, but supported by the following facts.

The sight of a few drops of blood, not unfrequently produces disordered sensations, that the carnage of battles had never excited.

The slow motion of a large ship, rolling upon a long sea, sooner disorders the head and stomach, than the quick tossings of a small craft under a gale of wind.

The murmur of a gentle stream invites to sleep, while the roaring of a torrent drives it afar.

How many different sensations are produced by various shades of light? To what extreme is carried the power of harmony? And what disordered associations are not excited by discordant and shrill sounds?

An atmosphere impregnated with the sweet aroma of flowers, often brings on a state of debility, that may be relieved by the pungency of their essential oils, applied to the nostrils.

The unpleasant sensation of an itching, is relieved by the stronger action of scratching.

The same stimulus, by an increase of excitement, will raise from the pleasant smile to the highest degree of passion.

The sudden application of a strong degree of cold imparts strength to a body debilitated and benumbed by exposure to a low temperature, or a milder degree of cold.

The heat of a strong fire produces a similar effect, when we find ourselves debilitated and exhausted by the temperature of a hot summer day.

Tepid water will favour vomiting, whereas cold or warm water will put a stop to it.

Many persons cannot bear to have their feet tickled, who can walk with firmness upon a rough gravel. Indeed all our sensations are so diversified or counteracted by one another, that their effects are without bounds.

On the other hand, experience and observation teach us, that a number of the most active medicines are greatly altered, and often lose their power by mixture. Opium and tartar emetick mixed together, afford remarkable instances of this nature.

The noxious effects of jalap, of Peruvian bark, or assafœtida, and many other drugs, disappear by an union with aromaticks.

Castor oil, so extremely nauseous to many, in the state of *emulsion becomes rather agreeable than otherwise.*

Can we not, on this ground, reasonably suppose, that contagious miasmata may be so modified by mixture with volatile substances as to become harmless, or that the organ which receives their action may, by various means, be protected against their influence?

It will, I think, at no remote period appear surprising that the sense of smell has so long been and is still thought of so little importance, for the greater portion of the phenomena propuced in the animal economy through this organ are not only unknown, but those which have been observed had not, previous to my experiments, excited the least suspicion of their cause."

Phila. Medical and Physical Journ.

FROM FOREIGN JOURNALS.

Account of the Epidemick Cholera, as it occurred at Mauritius; by C. TELFAIR, *Esq.*

ON the 16th November last, at Port-Louis, the faculty were first astonished by the sudden appearance of this new disease. The patients consisted of the black population chiefly, and of the Mosambique caste. These are the curley-headed woolley negroes,—low in the scale of civilization,—too unintelligent to learn trades, and generally used as porters for heavy burthens, or such work as requires mere animal force. They are an unenterprising quiet race, not given to excess, living chiefly on rice and Indian corn. When struck with the disease, they were commonly at their general avocations; and, without any previous notice, fell at once to the ground, as if by an electrick shock. In this state, they were lifted by their comrades and carried to their masters, or the nearest medical man. In a few minutes, the whole of the body, head and limbs, was covered with a cold sweat, falling off in great drops; the prostration of strength very remarkable; the strongest man having no more force, either of speech or muscular movement, than is observed in a fainting fit, when animation begins to return; the voice hardly audible; the skin, when touched, has the feel of wet marble. With this, there is a sensation of internal unquenchable heat; an incessant thirst; the tongue soon gets a parboiled appearance, and becomes cold from the first. There is a violent inclination to vomit, and to go to stool; the dejections re-

semble generally clear water, mixed at first with undigested aliment. In a few minutes, in some cases from the first, no pulse is felt at the wrist; the fingers and toes, and arms and legs, become shrunk in a most extraordinary manner; so that, from being plump and round, they appear as if not only the blood had been drawn out of them, but as if the muscular substance had also disappeared. The nose also becomes cold and pointed;—and in the course of an hour, a stout man has all the appearance of having kept his bed, in a constant state of exhaustion, for six months. The eyes shrink into their sockets as if their fat cushion was absorbed. On looking at the profile of the patient, you see in most cases merely the circle of the orbit, the prominence of the eye having entirely disappeared. There is also a severe pain at the angle of the jaw on each side, and under the ears;—a partial deafness takes place. But the worst torments consist in the spasms which come on without delay, beginning in the cold feet and legs—running up the abdomen—twisting the patient in the greatest agony in every imaginable contortion—and returning every five or six minutes, accompanied with retching and tenesmus of the most violent kind, until death. The change of the countenance is very striking;—a father would not know his son to be the same person after two or three hours of the disease. Among the whites who have fallen, this change is still more remarkable, as the yellow and livid colours commence very early to banish the natural white and red. These changes begin in the extremities; and many of those who have died, had the first presentiment of the fate that awaited them, from being struck with the extraordinary appearance in their hands and feet,—the shrivelled, shrunk appearance of the skin of the fingers and toes,—bloodless and fleshless,—and looking as if they had been sodden in water for days. The arms and legs become stiff, and with intense pain below the knees and at the wrists. The livid deadly colour follows these symptoms, and advances till the whole body and every feature are equally discoloured. The abdomen becomes distended like a drum—all dejections cease—the clysters which are thrown up are retained—the medicines which are swallowed and the liquids are not vomited, notwithstanding all the convulsive efforts of the patient. The natural heat never returns. From the first moment, every

portion of the skin has the feel of a cold, wet, marble slab. Bottles of warm water—the vapour bath and warm bath, appear to have no more effect in exciting heat, than they would upon so much dead animal matter. Yet, with all this extreme cold, the patient cannot bear the weight of bed-clothes—complains of heat—is much annoyed at the frictions by which it is attempted to restore the circulation. The cold and viscid exudation from the skin continues to flow faster than it is rubbed off; and I am persuaded that, were the patients by any accident to be weighed before the disease, and again after its attack has endured for a few hours, the loss of substance would be found very remarkable, from that cause *alone*, of extraordinary discharge. The duration of the disease, when fatal, varies from two or three hours to twenty-four or thirty—but generally it is under twelve hours; and the patient seems to have a presentiment, which is generally correct, of the period which is to terminate his sufferings, and predict the hour they are to die. Very few have any hope the moment they are seized; even the strongest minds are completely overthrown; and there seems a carelessness, and even aversion, to the employment of remedies. Such is a sketch of the symptoms generally, from which there has been little variation.

It appeared to me, that the disease was peculiarly one of the nature of the Iliac passion; but of greater violence than usually occurs, and, therefore, depending very much upon the state of the abdominal viscera. The classes of people who were most liable to its attacks, were those much troubled with visceral complaints, indigestions, worms, and all those disorders which arise from a food consisting of much vegetable aliment, without much condiment, and insufficiently prepared for digestion by the process of cookery. The consequence is, that the stomach and bowels are generally distended with undigested matter—worms are generated in great quantities—diarrhœas occur from time to time—and marasmus is not unfrequent among persons thus fed. Under these circumstances, a violent inflammatory attack of the viscera is generally irresistible;—there is great difficulty in overcoming the causes of inflammation;—the patients will hardly bear the lancet—or great evacuations. It was to these causes, or similar ones generally, that I attributed the great mortality that attended the disease. I

myself had adopted a plan of feeding our people, which tended to prevent diseases of the stomach and intestines. The food was more carefully prepared. A large quantity of nourishing soup, containing a considerable proportion of animal aliment, was always at the disposition of every person on the estate to eat as much of as he liked. By frequent examinations of the people, I had overcome the prevalent tendency to worms, not only by the means abovementioned of strengthening the stomach, but by frequent administration of small doses of calomel at night, succeeded by castor oil in the morning, in all clearly marked cases. Our estate was, from these causes, more healthy than it had been for years. At the time the disease appeared at Port-Louis, when it began to spread and gain ground, I deemed it proper to take still farther precautions,—to keep the bowels soluble,—and administered to each person on the estate, every Sunday morning, from one to two grains of calomel on an average, and half a pint of salt water at the seaside; and, on Thursday morning, the same quantity of salt water without the calomel. This may remind you of Dr. Last's prescription of "julepping the eastward and bleeding the west," in Foote's farce. But when you have to dose a population exceeding five hundred persons, it is not inconvenient to reside at the side of the ocean, and to draw from that grand reservoir. Whatever effect may be attributed to this cause, it is certain that the people remained healthy on this plantation, whilst all around us were suffering under the disease—even our nearest neighbours on each side of us: and so struck were the inhabitants generally with our exemption, that many followed our example, so far as the evacuating plan went, and conceived that the best consequences resulted. But my own opinion is, that the previous system of superiour nourishment is of indispensable importance also to a fair trial.

At last, the disease reached Belembre.—Its first victim was a negress of the Mosambique caste, aged 54 years. This woman was at her ordinary work, weeding some Indian corn near the house, when she was observed by the surgeon of the Establishment leaning against a rock, and making efforts to vomit. He examined her pulse, and found it small and confined. In this case, the duration of the disease was eleven hours. She was seized at five in the evening, and died about five next morning.

She had made no previous complaint; and when questioned, said she had been sensible of no incommodity, but that of a slight looseness during the forenoon.

On the following day, the 25th, another Mosambique negress, of the same age, complained, at ten o'clock in the forenoon, of looseness, colick pains, and sudden prostration of strength;—her pulse much confined, or, as the French say, "*gene.*" Towards noon, the symptoms were aggravated. She took small doses of neutral salts every hour; larger quantities of rice water and other mucilaginous drinks; emollient clysters frequently; warm bath, and frequent warm embrocations of the abdomen. Towards evening, the coldness became universal. Her pulse vanished from the extremities; and, in the beginning of the night, she expired.

After the death of this negress, there was an interval of seven days before any fresh case happened on this estate; but, on Tuesday, the first of February, a Madagascar negress, aged about 45 years, complained of colick pains and looseness. She stated that she had been thrice at stool during the night; but had slept well at the intervals. Her pulse was, however, loaded; and there was an apparent alteration in her features. A neighbouring surgeon, Mr. Hodoyer, called in to visit her, with the medical man of the estate, stated, that it was the reigning disease under which the patient laboured; gave ipecacuanha, which vomited copiously; and continued doses of neutral salts, two drachms every two hours, with abundance of mucilaginous drinks and clysters. All these means were ineffectual. The alvine dejections were constantly watery, mixed with a gray mucus and indigested aliment. The pulse disappeared during the day; and at night she expired.

Next day, the 2d February, at five o'clock in the morning, a strong and robust Mosambique black, of 40 years of age, complained of colick pains and diarrhœa. His dejections were of the same nature as those of the others. He complained most of a dull pain in the lower part of the abdomen, and, chiefly at the left flank, with a feeling like a ball, which forced its way upwards, causing a fluttering of the heart—the skin cold—pulse small—and hardly perceptible at the wrist at long intervals. He was treated with hot baths, and evacuants and frictions, as the former cases,—and with the same result. His

nose and extremities had become thin and crisped; but his body was full, muscular, and fat. An hour before his death, the general coldness had given way to a great accession of heat—like the hot fit of a burning fever. He was then in the hot bath, and, by his exertions, escaped from the hands of four blacks, who attempted to keep him in it.

The same day, at noon, another black of the Creole caste, complained of similar symptoms; his age about 35 years. Seeing how ineffectual the plan hitherto pursued had been, we began by taking six ounces of blood from this man, although it was obtained with difficulty, from the smallness of the pulse. Administered thirty grains of ipecacuanha in powders—gave frequent clysters of mucilaginous liquids—warm bath—and, after the operation of the emetick, small and frequent doses of rhubarb. The symptoms became very early of intense violence,—a most profuse cold colliquative sweat—pulse very feeble—severe pains about the pericardium, and in all the articulations of the bones of the limbs and body. His face looked as if frozen—his eyes shrunk back in the sockets—his fingers crisped and bloodless—his sufferings were extreme; and he gave over all hopes from the first moment. It was needless to attempt any farther remedies with this man; yet saline medicines were continued, which he swallowed; but they produced no effect;—nothing was vomited, and his purging stopped. His stools at first were watery and white, with flocculent mucosities much subdivided, and appeared as if flour had been thrown into them in small quantities. Bottles full of warm water were wrapped in flannel, and placed all round his body and limbs to excite warmth,—but in vain. As this man had the appearance of being very athletic, full of blood and strong, being our chief blacksmith; and as five hours had not elapsed since his first seizure, it was deemed proper to bleed him again, notwithstanding the extreme prostration of strength, if he were to die under the operation. It was thought that it would, at all events, lessen his torments and agony, which appeared extreme. He was therefore put in a hot bath, and his pulse thus returning in the arms, the surgeon took ten ounces more blood from him. His convulsions and writhings were incessant; his enemata were not returned; all that he swallowed remained in his stomach. He called for cold water, and drank much.

His breathing was with that kind of whistling noise which is made when a person feels extreme heat;—he died in less than six hours from his first attack. The rapidity of the fatal termination in this case decided me, notwithstanding the prejudices against dissection, to examine the body after death. I had previously made diligent enquiry, among all the medical men of my acquaintance, as to the result of their observations in the dissections they had made in this disease since its appearance amongst us; but was invariably told that there had been no appearance, either in the viscera or brain that could at all explain the extreme violence of the symptoms. The surgeon opened the body before me.

On dissection nothing remarkable was found in the thoracic cavity; the liver, also, was apparently sound and unaffected; the gall-bladder, with a proportion of bile, apparently of a healthy quality. The stomach appeared much distended, and of a darker hue than is usually found; and its blood-vessels appeared large and dark. We opened it, and found its contents to consist chiefly of what the patient had last drank, mixed with a great abundance of filiamentary mucosity, and with a greasy appearance. The whole interior coat was highly inflamed, and so dark as to leave no appearance of its natural colour;—it was like a raw, bloody surface, and the vessels appeared as overdistended by a forced injection. The pylorus was, on the outside, like a hard tumified gland, much increased in bulk; and within, was so narrow in the passage as to admit with difficulty, and after several attempts, the little finger. The duodenum participated, but in a much inferior degree, this turgescence and inflammation. These appearances were enough, in my opinion, to satisfy our judgment as to the cause of the death. However, wishing to leave nothing unexamined, we proceeded to trace the whole course of the intestines, and found, without expecting it, one intus-susception near the middle of the ilium, and another near its inferior extremity. These volvuli, or invaginations, appeared very recent; the portions of intestines comprised in them were not apparently inflamed; a slight pull with the hands disengaged them, although the part taken in was four inches in the one case, and about five in the other. There was no collection of fæces or fluid either above or below the point of intus-suscep-

tion, nor any remarkable trace of irritation; and I attributed these volvuli rather to the effects of the agonizing spasms, to which the patients had yielded, than considered them as causes of his sufferings. There were no other variations, from the appearances of nature, observable in this dissection. There was much fat in the omentum; although that of the limbs and the orbits of the eyes seemed to have been absorbed.

It appeared to me that this case demonstrated decidedly, that notwithstanding the extreme prostration of strength, and every symptom denoting a diminution in vascular energy, yet that the disease itself was nothing else than a most violent inflammation; and that the sole hope of subduing it must be sought for in the withdrawing the pabulum of inflammation from the system, and at the same time exciting, in the extremities and on the surface, an increased action by all means in our power. This latter part had already been attempted with little success by means of frictions, baths, heated bottles and stones; and there appeared an absence of that vis vitæ necessary to be excited into action by blisters and sinapisms. The patient generally dies in a cold fit, before a hot paroxism has time to succeed; yet, in one of the cases I have cited, there was the hot fit established an hour before the fatal termination; and in the last case, it is seen that the inflammation is at its extreme violence in the cold fit. It appears as if the great mass of blood deserting from the extremities, and, pouring upon the centre, produces extraordinary action and heat internally, whilst the surface is cold and flabby, and bloodless and insensible.

The next case which I shall mention had a favourable termination. The black was of the Indian caste. He had the usual symptoms; but the skin was not covered with the cold colliquative sweat. His dejections were watery—pulse hardly perceptible. Eight ounces of blood were immediately taken, though with difficulty; ipecacuanha, and afterwards, rhubarb, given without effect; diluting drinks and mucilaginous clysters every quarter of an hour; hot bath. At length vomiting came on; when it ceased, castor oil was administered. The pulse had entirely ceased at the wrist. Hot bath repeated, at as high a temperature as could be borne. About nine hours from the moment of seizure, the stools began to appear mixed

with fæces; the patient became more calm. It was now night, and he had some minutes of sleep from time to time; his pulse began to return, though feebly. The next morning, a dose of glauber's salts much diluted in rice water, was given; diluting drinks and clysters continued. The sufferings became less constant and troublesome. The heat returned to the surface. The third day he was without pain; no diarrhœa; great weakness. Purgative drinks of salts and manna were given: his appetite returned; he was carefully nourished; had claret and water for drink; and in a few days was able to go about light work.

In our population of nearly six hundred people on this estate, I lost seventeen by this disease, which was considered as a very small proportion; many habitations having lost 10 or 15 per cent. of their people, and some were reduced in a few days, by this misfortune, from opulence to poverty. I opened every subject after finding the intus-susception, and to my surprize found in all but one, the same appearance. Every case had one or two invaginations of the ilium, and one child had four. It appeared extraordinary that the same appearance was not observed by the medical men of the island, which I attribute to a less curious examination on their part than I myself made. In the general and superficial look at the intestines, which is generally considered sufficient in such dissections, there was nothing to excite inquiry; and the minute search which I happened to make, on the first dissection, leading unexpectedly to the discovery of these volvuli, I continued a similar search in the other cases, and found similar results, without being at all prepared to meet them. Whether you may consider them as causes or effects of the sufferings of the patient, I know not; but I am inclined to regard them in the latter light; because in general I found, that the parts of the intestinal canal actually invaginated were without those strong marks of inflammation approaching strangulation, which it would require to produce the "tormina vehementia, cruciatusque intolerabiles" of the disease, whilst the region of the stomach exhibits the inflammatory state. *Edinburgh Med. and Surg. Journal.*

Cases of Inflammation of the Pericardium; *by* R. Knox, M. D.

Case 1.—M., aged 31. 15th. Complains of severe and con-

stant dyspnœa, with great oppression of the chest; cough; copious, bloody, and purulent expectoration; also frequent vomiting of a very bitter and greenish coloured substance.—There is constant soreness in the site of the stomach and liver, but no acute pains. Sometimes, however, pains are felt at the top of the right shoulder. A slight hardness, and some tumefaction, may be felt in the epigastrium and the hypochondriack region. The emaciation and debility are considerable; the countenance of a yellowish tinge; pulse quick, but irregular; great thirst; tongue yellow; no stool for some days. The present attack commenced about three weeks ago, with aggravated dyspepsia, cough, and the spitting of blood; as also with vomiting and severe headache. Says that he has frequently had strong palpitations of the heart; was recently blistered, and has been taking acid and cough mixtures. Had some castor oil and Tr. sennæ.—Milk diet. He next took pills of calomel and colocynth, to the extent of nine grains of the former, and twenty-four of the latter; and, finally, at 6, P. M., a purgative enema: effervescing draughts, and abdomen fomented.

16th.—Physic operated but not until he had received the injection, when two scanty and scybalous stools were procured. The vomiting continues as severe as yesterday, and he has spit a considerable quantity of blood and purulent matter. Pulse quick, but of natural strength; says the opium has never agreed with him. (Cont. pil. coloc. et calomel. Repet. enema si opis sit. Utat. potu ex potass. supertart. et Habeat h. s. extr. hyoscyam. gr. iv.—Hora 6, P. M. Applic. episp. part. adom. dolenti.)

17th.—The enema operated, and two scanty stools were procured. Spitting of blood much diminished, as also the vomiting; rested well during the night; says there is no pain in any part of his body, but he feels as if a fluid moved through his lungs. (Cont. medic. ut heri.)

18th.—Had four stools, the last of which were not scybalous; some vomiting in the morning; expectoration of blood continues; feels pains in the right side; strength much failed, and the pulse is weak and small. (Cont. omnia ut heri, et hab. quoque lac ammoniac.)

19th.—Has very little vomiting or spitting of blood; is in-

clined to be costive; pulse pretty natural; blister discharges considerably; takes no food. (Repet. omnia.)

20th—Has often a gulping of bilious matter from the stomach; but there is now a very little spitting of blood, and no pains. General symptoms somewhat alleviated. (Cont. omnia.)

21st.—Great oppression and burning pain in the chest; bloody and purulent expectoration nearly ceased; little cough; is extremely weak; pulse irregular, slow; had four stools.

22d.—Complains of soreness all over his body; all symptoms ceased; much stifling in the chest; died in the night. He took wine to the amount of several ounces during the last days of his illness.

Dissection.——Thorax.—The cavities of the *pleura* contained about 2 1-2 pints serosity, the right more than the left; slight adhesions in the right side anteriorly. The lungs contained a considerable quantity of mucus. On opening the pericardium, the entire serous surface was covered with a layer of coagulable lymph, and long slender adhesions united it to the heart: the part of it investing the heart itself was studded with small prominent bodies, giving to the finger a sensation as if drawn over sandpaper. The serosity contained was not great. *The heart itself was larger than usual; and the left ventricle* possessed a thickness of substance which might be called morbid. In the cavity of the abdomen, the liver was found to be of a large size; but nothing very remarkable was observed in any of the other viscera. [The following conclusions are offered for examination by Dr. Knox.]

1*st*. The difficulty in the diagnostic of pericarditis is allowed *to be great; yet perhaps, with care, the disease, for the most* part might be detected at its commencement. In the cases I have witnessed, amounting to five, vomiting was universally peresent, and the patient could not lie with ease on his back. These symptoms have been observed by so many others, that I should deem the concomitancy of vomiting, with symptoms of inflammation within the cavity of the chest, as a decisive indication of the nature of the case. The most dangerous errour which can be committed is the confounding pericarditis with typhus fever or hepatitis. The treatment by such stimulants as wine and opium hurries the patient rapidly to an untimely grave; whilst the extreme abuse of calomel in hepatic cases, proves no less destructive when the disease is mistaken for

hepatitis. Should the disease be mistaken for pleuritis, as indeed they are often combined, the patient's chance of recovery would necessarily be diminished; for no one would venture to employ depleting measures to that extent, which a knowledge of the presence of pericarditis would warrant. I differ, therefore, from the learned author of the article "*Pericardite*," in the "Dictionnarie des Sciences Medicales," who seems to consider it of little import though the disease be mistaken for pleuritis, as the treatment would necessarily be similar in either case. But every British practitioner, I imagine, would, on ascertaining the existence of so very alarming a disease as inflammation of the pericardium, adopt measures much more active than those generally resorted to in a common pleuratic case: He would carry venesection to the utmost possible extent; and would employ large vesicatories, which from the vicinity of the organ affected to the surface, would materially contribute to arrest the progress of the disease.*

2*d*. A very careful inquiry into the nature of pericarditis has disposed me to adopt the opinion, that no one ever survived, for any length of time, an inflammation of the pericardium, whether acute, subacute, or chronic. As this opinion is in direct opposition to that of some very distinguished authors, I shall here briefly endeavour to show the grounds on which the conclusion has been adopted. The only proof hitherto offered, so far as I know, of a person having survived the effects of an inflamed pericardium, are drawn from the appearance of adhesion of this membrane to the surface of the heart, which have presented themselves when no previous symptom led to the belief that the person had laboured under any disease of that organ for at least a great number of years. But many cases are on record, in which the pericardium was found adhering to the surface of the heart,, though, during no period of the patient's life, was he known to have been afflicted with disease of any organ contained within the cavity of the thorax. I find amongst my notes two such cases, in which, after the very sudden death of the patient, who had previously for many years enjoyed perfect health, no morbid appearance was found excepting the adhesion of the pericardium to the heart. It is also

* For a very instructive case of pericarditis mistaken for rheumatism, see Pelletan's Surgical Works. The patient was the celebrated Mirabeau.

somewhat remarkable, that in neither of these cases had the patient ever been known to be affected with any disease referable to the chest. We shall presently consider the connection between the morbid appearance found, and their sudden death. A few cases might be quoted from Morgagni, and other equally respectable authors, confirmatory of this pathological fact; and a distinguished modern anatomist and pathologist (Laennec) allows that he has repeatedly met with such cases. "Il a ouvert un grand nombre des sujets qui ne s'etaient jamais plaints d'aucun trouble dans la respiration ou la circulation; ou qui n'avaient presente aucun signe semblable dans leur maladie, quoiqu'il y eut adherence intime et totale des poumons et du cœur." It would seem, then, that the adhesions observed between the serous surfaces of the pericardium are of very different natures; that in the first, where coagulable lymph is effused, inflammation more or less acute is present; purulent matter generally appears, and the disease is necessarily fatal. On the other hand, the pericardium, without any alteration of structure, occasionally adheres to the heart by a short cellular texture, and without any accompanying or preceding inflammation, as we often find takes place in the pleura. The patient suffers little or no inconvenience, *but is apt to die suddenly at a period more or less remote.* This is an important fact, hitherto unobserved, so far as I know; and whether satisfactorily proved or not, merits the attention of the pathological anatomist.

It is well known that, in the phlegmasiæ of serous membranes, the formation of adhesions generally succeeds in arresting the farther progress of the disease, and gives to the patient an additional chance of recovery. The forming of adhesions between the serous surfaces of the heart would be accompanied with the same beneficial effects as in the phlegmasiæ of other serous membranes, were it not for the nature of the organ which it protects, its perpetual activity, and the circumstance of its being the very source of life. In cases of pericarditis, even previous to the formation of adhesions, the disease has already committed ravages on the constitution, has destroyed the delicacy of the membrane, and altered its natural texture. It then becomes much thickened, dense, and inelastic: its smooth internal surface is altered; considerable masses of coagulable lymph have been deposited, existing either loose in

the cavity, or forming the bond of union betwixt the diseased surfaces of the pericardium. All analogy points out that we must not strictly apply the pathology of other organs to the heart; and we have seen, in the distressing case of M., that the disease will destroy the strongest frame, though purulent matter be not effused into the cavity of the pericardium, and the otherwise favourable circumstance of adhesions have taken place, without averting, or in the smallest degree delaying, the period of the fatal catastrophe.

3*d*. Were we in possession of all the details relative to those cases where the pericardium has been found adhering to the surface of the heart, in persons who, during life, had never complained of any pectoral disease, we should probably find that such adhesions as those I allude to, which are neither accompanied by, nor preceded by, inflammation of this membrane, are, from the nature of the organ whose function they interfere with, attended by the sudden death of the patient. This would seem to be confirmed by two cases met with in Morgagni, (Ep. 5—19. & Ep. 8—6.) and probably patient research into the *fasti* of medicine might produce evidence sufficient to establish this opinion, which I must consider as one of considerable importance with a reference to *legal medicine*.

I shall conclude these brief remarks by summing up, in a condensed form, results drawn from numerous dissections of deceased bodies, altogether independent of medical theory or hypothesis; their refutation or confirmation, by an appeal to the same source of knowledge, will afford me equal pleasure. 1*mo*. Hitherto inflammation of the pericardium has been almost uniformly mistaken for that of some other organ, or, unhappily, for some other disease of a totally different nature; hence those enjoying extensive practice, either in private life or public hospitals, should direct their particular attention towards investigating this disease. 2*do*. Inflammation of the pericardium, which has advanced so far as to form adhesions betwixt its surfaces, or to pour out coagulable lymph or purulent matter into its cavity, is uniformly and necessarily fatal. 3*tio*. Adhesions which, on other inflamed serous surfaces, limit the progress of the inflammation, and rescue the patient from immediate death, are of temporary benefit only in cases of inflamed pericardium, and do not ultimately save the individual. 4*to*.

Adhesions are formed between the serous surfaces of the pleura, pericardium, and peritoneum, without inflammation, and without the previous effusion of coagulable lymph.* When an adhesion of this nature unites the serous surfaces of the pericardium, it is very extensive, most commonly uniting the entire surfaces. To suppose that this was formed by the agency of any inflammatory process, involves the further supposition that a patient could possibly survive such an inflammation, and that it might have run its course without the production of any very obvious symptoms in the sufferer; suppositions which no pathologist would venture seriously to defend. *5to.* These adhesions, when they affect the pleura and peritoneum, are of little consequence unless very extensive; but, when they regard the pericardium, they must necessarily affect the motion of the heart, and seem productive of sudden death (without any preceding illness,) at a period sometimes very remote from the time of their formation. *Ed. Med. and Surg. Journ.*

* It is not improbable that, at some future period, a connection may be traced between such cases and those in which the surfaces of the pericardium have been totally destitute of moisture.

YELLOW FEVER.

[*From the London Courier.*]

Spring Gardens, Oct. 8.

Sir,—At a time when a most fatal pestilence is ravaging the southern coast of Spain, and exciting such terror in the neighbouring states as to induce them to put in force the most rigid quarantine discipline, it may not be uninteresting to the British publick to know that a countryman of their own, the veteran Dr. Jackson, now, I believe, on the verge of seventy, went voluntarily, and at his own expense, last year (1820), to the scene of this fever's devastations, in order to ascertain whether or not it was contagious, and what were the most effectual modes of treatment. He has just published a volume, containing very curious and important observations on this dreaded epidemic. It is a consolation to know that this very able and experienced physician has proved, very satisfactorily, that the disease is of a local origin; that it never was imported into those countries where it now rages; nor is it possible, almost, that it should ever be transported thence to any distance among the states in its vicinity. Popular prejudice having assigned the disease a foreign origin, popular terrour has clothed it in properties of the most virulent contagion; and this last errour has so divested the people of common humanity, that not only are the sick and wounded abandoned to their fate, but those who fly to the open country or mountains, (where, in fact, the malady cannot exist, much less propagate itself,) are treated like contaminated deserters from a pest-hospital, and are left to starve or put to death by their barbarous countrymen. It is consoling, however, to be certain (and it is most certain,) that a few

weeks more,—that is, the approach of cold weather,—will cut off the sources of the epidemick, (which could not be the case were it a common contagion,) and thus annihilate, at least for a season, the disease itself.

In proof that the disease is not personally contagious, Dr. Jackson brings forward the following, among other authentic facts: "In the year 1800, when upwards of ten thousand people died at Xeres de la Frontera, sixty persons were employed to bury the dead. The buriers entered the houses where the dead lay, took the bodies in their arms, often, it is presumed in a loathsome state, put them into the carts in heaps, and drove them to the place of interment. None of the buriers were infected." A somewhat similar event happened in the year 1819, at St Lucar. The buriers of the dead having shamefully abused their office, the friars of the Franciscan convent most nobly volunteered the interment themselves. "The offer," says Dr. Jackson, "was accepted; and the friars, on entering on the duty they had thus imposed upon themselves, found the majority of the houses, or sick apartments, deserted, the bodies of the dead lying in various postures upon the beds, or on the floors. They wrapped them in sheets, or in such other covering as presented itself in the apartment, carried them to the bier on their arms, and afterwards in the bier on their shoulders to the grave. Not one of the meritorious band was attacked by the disease." In short, from the records of the past, and the evidence of the present, there is not the least reason to doubt that the epidemic now ravaging Andalusia is of the same nature, though perhaps more violent in degree, as those which have, in autumnal seasons, appeared in the same places, at longer or shorter intervals, for centuries. The poison, or malaria, which produces the disease, is the product of the soil itself, elicited by particular seasons; and the fever so generated, if directly exported to other countries, could not there be propagated, for want of its primary pabulum.

Such is the opinion of Dr. Jackson, who visited the dying, and examined with his own hands the dead, so lately as in October, 1820. It is also the opinion of the most enlightened English and French physicians who have visited the unfortunate theatre of the pestilence. Excepting the inconvenience, no harm apparently results from the quarantine precautions adopted by the neighbouring states; but the contagion conviction, impressed on the minds of those residing in and near the sickly towns and districts, gives rise to the most deplorable events, and deprives the unhappy sufferers of all succour or consolation from even their nearest friends or relatives! The operations of nature, however, and the revolution of the seasons, will soon put a period to the ravages of the epidemic.

JAMES JOHNSON, M. D.

CONTUSIONS ON THE EPIGASTRIUM.

Case 1. A soldier in the 1st regiment of cuirassiers, 29 years of age, received a blow, by the kick of a horse, on the epigastrium, 18th October last, which felled him to the ground, whence he could not rise. He was bled instanter, and conveyed to the military hospital of the guards, where Baron Larrey found him, motionless, pale, skin cold, eyes fixed, breathing feeble and slow, pulse scarcely perceptible. The epigastrium was so tender that the least pressure there caused the patient to utter groans. He otherwise spoke not. There was no appearance of injury on the part. Six cupping glasses (cum ferro) were applied to the epigastrium and vicinity. The application was very painful, but

gave some relief to the patient, who opened his eyes, and expressed by interrupted words a sense of improvement. The pulse rose a little. This operation finished, Baron Larrey caused a sheep to be instantly pithed, and the skin, torn reeking from the body, to be enveloped round that of the patient. Round this hide again were thrown warmed blankets, in order that the temperature might be kept elevated for some time. In this situation the man remained two hours, at the expiration of which time things were greatly altered for the better. The coldness of the surface was gone—some colour returned to the face—and the patient could give an account of the accident. Nevertheless, he passed a very bad night; continually complaining. On the succeeding morning he presented the following symptoms: epigastrium and abdomen still very painful and tumefied, violent pain in the right shoulder, which induced a suspicion that the liver was injured, the pulse was full, strong, quick—tongue and mouth dry, thirst ardent—yet without hiccup, vomiting or head-ache. The eyes were sunken and very red—the face pale, and the features sharpened, exhibiting the expression of intense suffering. Warm bath, copious venesection, cupping, embrocation, diluents, no food.

The third morning presented little change. The tenderness of the abdomen was still extreme, and the other symptoms continued—and in addition, the patient felt as if the right arm was fractured. On this member camphorated oil was rubbed. Emollient fomentations to the abdomen—diluent drink. On the fourth day, although the pain of the epigastrium was acute, yet the patient could bear pressure on the part somewhat better. The other symptoms were rather milder—the bowels were relaxed throughout the complaint—but the pain in the arm principally engrossed the patient's attention. He still insisted that there was a fracture there. A blister to the epigastrium. From this time the symptoms became gradually ameliorated, and, by the 12th day, convalescence was assured, and appetite restored. Convalescence continued till the 24th November, when some irregularity determined a relapse, presenting all the symptoms of acute hepatitis, which, however, gave way to local bleedings, blisters, and at last the moxa. He was discharged to duty in the beginning of December.

M. Duponchal thinks that this patient would certainly have been lost had it not been for the extraordinary measure put in force by Baron Larrey, as above related. This was the third successful employment of the same measure by the Baron, at the Military Hospital. The application of a recently excoriated sheep's hide is directed by Ambrose Pare', as a last resource in violent contu-

As a general rule of conduct, the practice of bleeding shortly after contusions on the Epigastrium—or indeed immediately after violent contusions of any part, is carefully to be avoided, as empirical and dangerous. When we draw blood, it is for the purpose of relieving pain, by lessening the force and frequency of the heart's action, or to save important organs from destruction by removing inflammation. Immediately after any great contusion the strength of the patient is extremely prostrated, as is evinced by nausea, vomiting, fluttering or slow soft pulse, cold sweat, cold extremities, and an expression of intense distress on the countenance. To bleed under such circumstances, is to add to the injury. After the system has fairly recovered from the shock, and the pulse rises, we draw blood to prevent the evils that would ensue when full reaction should operate on the parts which have immediately suffered. We have known (self styled) surgeons even to bleed patients soon after great operations, to prevent inflammation !! *And why not cut off his leg to prevent the patient from ever breaking it?—Or extirpate the eye least it* might turn *cancerous?—Or extract all the teeth to prevent them from aching? This would be as rational as the practice to which we have objected.* EDITOR W. Q. R.

sions, and where life is menaced by the first effects of the shock. Baron Larrey, in the first volume of his Memoirs and Campaigns, reports the instance of some sailors who were shipwrecked on the coast of Labrador, and picked up on the beach by the Esquimaux Indians, almost dead with cold, and exhausted with fatigue. These hospitable creatures placed the sailors on dried skins, chafed their bodies and limbs with hot aromatic liquors, and then enveloped them in the freshly excoriated hides of animals which they killed for the purpose. The inhabitants of Upper Egypt also are acquainted with this remedy. In violent, but very circumscribed contusions, they take out the intestines of a dove or other bird, and apply it warm to the part—but, where the contusion is extensive, they surround the body of the patient with the hide of a sheep just stripped from the body of the animal. In the memorable Russian Campaign, it is said that the most effectual mode of preventing the complete congelation of a limb, was to fold it in the skin of an animal just killed—or even to plunge the member into the reeking entrails of a horse.

We are disposed to agree with the author of the paper before us, that there is something more congenial in a warm, and we might say half-alive substance of this kind, than in any unorganized medium through which a similar degree of temperature could be kept to the part or whole of a human body. Our author proposes the application in question, in cases of repelled eruption, and to a limb after the operation for aneurism. To these propositions we can have no objection.

Case 2. This had not so favourable a termination as the former. On the evening of the 3d May, 1820, N——, a soldier in the Royal Guard, received, while attempting to mount a horse, so violent a kick on the umbilical region as felled him to the earth. He was instantly carried to the military hospital, and the surgeon on duty applied to the abdomen several cupping-glasses with scarificators, which abstracted an abundance of blood. This measure produced but little relief, and the patient passed the night in great anxiety. In the morning, when the surgeon in chief visited the wards, the patient was found lying on his back, the breathing difficult, the heart beating irregularly, the pulse scarcely perceptible, the extremities cold, the lower belly very painful, especially on pressure, or the least motion of the body. More blood was drawn from the abdominal parietes by cupping, and the patient was immersed in a tepid bath, after which, frictions with camphorated oil of chamomile were employed. A calm of a few minutes was followed by the most alarming symptoms, which terminated his life in about fourteen hours after the accident.

Dissection. No external mark of contusion on the abdomen; but the peritoneum reflected over the internal surface of its anterior parietes, as well as that covering the intestine, was of a deep red colour, and presenting all the phenomena of intense phlegmasia. Recent albuminous exudations had already agglutinated the convolutions of the intestines, and a pint and a half of reddish coloured serum was effused in the abdominal cavity. The coats of the stomach were slightly injected. The duodenum appeared sound, but there was a circular hole in the jejunum, surrounded with a margin of ecchymosis. Nothing particular was observable in any other viscus of the thorax or abdomen.

The narrator has no doubt that the main cause of death was the rupture of the intestine and the extravasation thence producing peritonitis. The *immediate* cause of death, however, he attributes to *pain*, as happens in almost all the hyper-acute inflammations of serous membranes. There is nothing wonderful in the internal rupture without external mark of violence, in cases of blows on the abdomen as we have often witnessed.—*Revue Medicale.*

XUM

Ophthalmia with Granulated Lids.—More than half of the patients who came under treatment, were affected with a greater or less degree of inflammation of the eyeballs, complicated with a granulated state of the lining of the lids. They had all been treated for a longer or shorter period, on account of the inflammation, in one or more hospitals, previous to their reaching Chatham; yet much still remained to be done, towards removing the cause which kept up the increased vascularity, and which, judging from the morbid appearances exhibited on admission, did not seem to have been much the subject of previous attention, or at least, if it had, the success of the treatment had not been such as was necessary for eradicating the disease.

The increased vascularity of the adnata and cornea, seemed at first view to be the principal affection; but, upon a more minute inspection of the eye and its appendages, the chief site of the complaint was discovered on the inner surface of the lids; and upon this the state of the eyeballs just alluded to was found to depend, as it disappeared in most of the cases in proportion as the lining membrane became smooth. The degree of inflammation varied very considerably; for in some, only a red vessel was observed here and there extending on the surface of the conjunctiva, or immediately under it; whilst in others they were so numerous and massed together, as to give the whole of the globe an uniform dark red appearance. In four of the number, however, in whom the lids were granulated, there was not the slightest affection of the eyeballs perceptible on admission, although it was afterwards found that inflammation was readily excited, by even the most trivial causes.

The corneæ in most, indeed I may say in all the cases, at least of any considerable standing, had suffered much from disease, they were not only very vascular, but frequently ulcerated more or less extensively, and almost invariably presented an abraded and opaque surface, according to the extent and density of which, vision was in a greater or less degree impaired; in fact, it may be said that many of the patients were admitted blind, as any rays of light which reached the retina were not more than merely sufficient to enable them to distinguish day from night, and often not that with absolute certainty. The surface of the eyeballs in the majority of instances, presented a dull watery appearance, in some verging to a yellowish hue, which appeared to be occasioned by an effusion of serous fluid, into the cellular texture connecting the conjunctiva and sclerotica.

Upon everting the lids and examining their inner surfaces, the upper always, and not unfrequently the lower, were found more or less thickly covered with small round bodies resembling granulations or warts, which, in part of the cases, were of a fleshy appearance and consistence; in others, of a hard pale cartilaginous description; and in a third class, they were of a soft texture and dark colour, like clots of congulated blood, and discharged that fluid copiously upon being touched; even in some instances the motion of the lids alone caused considerable hemorrhage.

In a part of the patients, the granulations were dispersed generally over the whole of the inner surface of the lids, whilst in others they appeared confined principally to particular parts of them, such as the *extremities*, inner edges of the *tarsi*, &c situations where, under any circumstances, they were always most luxuriant, and from which they were invariably most difficult to remove. The first variety, or those which had the appearances of granulations seen on the surface of healthy sores, most readily yielded to treatment; that is to say, they were soonest entirely removed, and a cure effected. The second,

or those of the cartilaginous description, were with much difficulty acted upon; indeed they seldom underwent any considerable decrease, till after numerous sharp applications of some one or other of the escharoticks, to be afterwards mentioned; and the third class, or those which resembled coagulated blood, though readily destroyed, would often, in spite of every application, attain their original size in the course of *twenty-four* hours; which disposition to sudden regeneration rendered them occasionally the most difficult of the three species to treat successfully.

The motions of the lids, especially when the granular bodies were large, were often very much impeded; and in many instances the patients were unable to raise the upper sufficiently to expose the eyeballs, without the assistance of the fingers. This incapacity appeared to arise, partly from the impediment to motion offered by the rough granulated surface, and partly from a degree of *Ptosis*—the frequent sequel of an attack of acute ophthalmia, particularly where the motion of the lids happens, on account of the violence of the symptoms, to be for any considerable time much restrained. This defect generally disappeared as the cure advanced, although, now and then, it was found necessary to employ remedies, with a view of directly removing it, which will come to be noticed by and by. A greater or less œdematous swelling of the palpebræ was also another not unfrequent attendant on this disease, and no doubt had its share in producing the state just mentioned, as it frequently occurred in individuals affected with the complaint under consideration. Lachrymation and slight puriform discharge, which glued the edges of the lids together during the night, were symptoms for the most part present; though, in a few instances, the latter was not observed till after escharoticks had been employed, a practice which was found invariably to increase it when it had previously existed, or to bring it on, when it had not appeared before.

The lower lids, though, as has been already remarked, much less frequently affected than the upper, were nevertheless occasionally found exhibiting the same diseased appearances, but producing much less irritation, in consequence of their more limited motions.

This state of the lining of the lids seemed, in the majority of instances, to have been the result of previous puriform or purulent ophthalmia, although, in several cases, it succeeded to the common simple form of inflammation; and, in a few examples, neither of those varieties, or any other, could be traced to have pre-existed. The latter fact demonstrates to us, that the degree of that morbid action, which is absolutely necessary for the formation of such preternatural growths, is far from being considerable; and that it may sometimes exist in the lining of the lids, without the individual being aware of it, till, from some other cause, an aggravation of the symptoms be produced. From this circumstance, it appeared always advisable to evert the lids and examine their inner surface, when a patient, on admission, was found to have laboured for a considerable time under any of the forms of ophthalmia, or where the disease, though even of short standing, and mild, was attended by a sensation of something rough, like sand or gravel under the upper lids, particularly towards either of the extremities, and with slight mucous discharge; or where, though the last symptoms did not exist, the inflammation had come on very gradually, and without any evident cause.

The lower lid is in general easily everted, simply by applying the extremity of the fore or middle finger close to the edge of the *tarsus*, and gently depressing it, whilst the patient directs his eye to some object immediately over his

head; but the eversion of the upper is usually with more difficulty effected. To accomplish it with more facility, the patient must be directed to look at his feet, and then the surgeon, with the thumb and fore finger of his right hand, should it be the right eye that is affected, must lay hold of the cilia of the upper lid, whilst, with his left hand, he applies a common silver probe a little above the upper edge of the tarsus, and by means of it makes a gentle pressure downwards and backwards; at the same time, through the medium of the cilia, carrying the border of the lid forwards and upwards, by which motion the desired effect will generally be produced. There are, however, cases frequently occurring, in which eversion cannot be thus readily accomplished, particularly in patients who have not perfect command over the *obicularis and levator palpebrarum* muscles, or when the conjunctival lining is very much thickened. In such states it is often absolutely necessary to employ considerable force; in consequence of which, it will generally be advisable to lay hold of the edge of the tarsus in preference to the ciliæ, as the latter might be pulled out before the object in view could be completed. Force, however, it may be remarked, is always a bad expedient, and was never employed, till the more gentle means had proved ineffectual.

The practice of everting the lids ought always to be tried for a considerable time, in slight cases, previous to attempting it in the more severe forms of the disease, as a peculiar facility is acquired by habit, which does not admit of explanation, yet must be sufficiently evident to every individual who is in the way of seeing with what expedition and apparent ease a person accustomed to perform it will effect his purpose, after others, less conversant in the practice, had been either foiled, or found it necessary to employ no small degree of violence.

Treatment.—The treatment at first was directed, with a view of effecting the removal of every symptom of active disease, which being accomplished, the destruction of the granulations became the principal object of our attention. The former of these indications was effected by the employment of general and local blood-letting, purgatives, washes and drops; the latter, by the application of various escharoticks, the chief of which were, the *nitras argenti*, *sulphas cupri*, and *acidum nitricum dilutum*. They were all applied to the same part, and with the same intention; namely, that of producing a more or less considerable slough, according to the nature and severity of the complaint.

The mode in which the escharoticks were applied, and the way in which one or other of the washes was used, I shall now proceed to describe to you. The patient was placed on a chair opposite a window, and the lid everted in the manner already directed; after which, if there was any mucous discharge lying on the granulated surface, it was cleared away, or if overrun by tears, they were dried up by a small piece of lint or sponge, and then the application of either of the causticks was made, according to circumstances. If the state of the disease called for the use of the argentum nitratum, a small portion of that substance, smooth, and gently rounded at the extremity, was fixed in a quill, or *porte crayon*, and applied to the granulated bodies; the effects of which were immediately evinced, by the formation of a dense white slough, and a sensation of burning in the parts to which its action extended, followed by a violent action of the orbicularis muscle, and a profuse discharge of tears. Where the granulations happened to be pretty close together, it was generally drawn gently along the surface; but where they were thinly scattered over the whole of the lining membrane, it was applied by touching those particular points, in consequence of which, many small sloughs, instead of an extensive one, were formed.

When the sulphate of copper, again, was the remedy made choice of, it was applied by rubbing the surface of the lids backwards and forwards, from one extremity to the other, with a polished piece of that substance, fixed in the same way as the nitrate of silver. The friction was continued till a more or less opaque slough was formed, which required in some a much longer period than in others. When there occurred, during the operation, considerable hæmorrhage, or a profuse discharge of tears, it was found necessary to sponge the surface of the lid occasionally, for the purpose of drying it, as either the one or the other of those fluids was found to carry off the sulphate so rapidly, as to lessen very considerably its action on the diseased parts. After the desired slough was thus obtained, the lid was still kept everted, and its surface well washed with one or other of the fluids already mentioned. To accomplish the last intention, the lower lid, provided the treatment just described had been directed to the upper, was gently depressed by the finger of an assistant, so as to uncover as much of the eyeball as possible, and then the operator, with the hand not employed in keeping the lid everted, took his sponge well filled with one of the washes, and pressed it into such a situation as to make the fluid fall directly on the everted lid, from which part it became afterwards generally diffused over the surface of the globe of the eye, and latterly on the lower lid. By managing the washing in this way, so as to keep up for a short time a continued descending stream, all portions of nitrate of silver or sulphate of copper, which might have accidentally become detached, were now removed. The patient was then sent to his ward, with directions to bathe the eye for a longer or shorter period with tepid water, according to the severity of the pain or smarting induced by the action of the escharotick employed. The pain was found to vary in degree and duration, according to the remedy made use of, or the degree of severity with which it was applied, but it seldom lasted longer than a few minutes; and frequently, more especially when the nitrate of silver was used, it was merely momentary. In several cases, however, it returned again, after the lapse of an hour or two; but then, instead of being the immediate effect of the caustick substance applied, it was only one of the attendants of an active inflammation which now and then was found to supervene, upon the treatment just described, but which was, in every case, easily overcome by local blood-letting and warm fomentations, either with simple water, or some medicinal lotion.

The *nitric acid* was generally applied diluted with four parts of water, by means of a camel hair-pencil, and was found particularly well adapted for the destruction of the soft spongy granulations, as it possessed not only an escharotick, but also an astringent effect; and, by being applied in a state of perfect fluidity, it got better into contact with them than either of the others. When thus diluted, it possessed likewise the additional advantage of producing but a slight slough, which was seldom found to prevent its daily application; a quality essentially necessary for the remedy to be used in the treatment of this form of disease, in order to suppress the growth of such spongy formations.

It was also found very useful in the other varieties of granulations, after one of the more energetick applications had destroyed the principal part of the disease; and indeed, from what I have seen, I think it ought to be preferred in all cases where the granulations have either not attained any considerable size, or where they have been nearly removed by the lunar caustick or the blue vitriol, in consequence of the slight eschars which it produces being less apt to hurt the conjunctiva, than the more extensive ones occasioned by either of

the two last mentioned escharoticks. The facility and certainty with which it is applied, and the little, if any, mechanical irritation which is required, in order to insure its effects, are other conveniences which it has to recommend it.

The same process of ablution was also practised after the employment of this acid, as after the other caustick substances, and conducted according to the plan already detailed.

An œdematus swelling of the lids was a frequent consequence of the use of all the escharoticks, yet more particularly of the sulphas cupri and nitras argenti; but it was found, in the majority of instances, to subside spontaneously in the course of a few days. A slight soreness of the inner surface of the lids, particularly on motion, was experienced for a few days after each application; and also for nearly the same period, a slight increased redness of the surface of the eyeball was remarked, both of which, in almost every case, gradually abated without the use of any remedies. *Edinburgh Med. and Surg. Journal.*

Case of remarkable Dislocation of the Patella, communicated by Mr. L. Wheeler.

Sep. 18th, 1821.—A coal-heaver fell down so as to allow both the fore and hinder wheels of an empty coal-wagon to pass over his right knee, in a direction from the inner to the outer side of the joint. He was immediately brought to St. Bartholomew's Hospital. The patella rested perpendicularly on its internal edge, and its external edge was inclined directly forwards, so that its upper surface was turned inwards, and its under or articular surface outwards; in the same way as the extended hand might rest on its ulnar edge, instead of its palm. I speak of the horizontal position of the body. The bone was placed so nearly in a perpendicular direction, that it was not easy at first to ascertain which was its upper, and which its under articular surface, but this was distinguished by comparison with the superior surface of the opposite patella. The insertion of the vastus externus into the external edge was the only tendinous attachment which was much stretched. I reduced the dislocation suddenly, but with some difficulty, by bending the thigh very much on the pelvis, drawing downwards the flexor muscles as much as possible, and by forcibly raising the bone at the same time that I turned it in its natural direction. Some inflammation in the joint followed, but was arrested by the usual means.

The following case related by M. Combette, will be found in the Journal Generale de Medicine for May, 1821:—M. C., thirty years old, dislocated his patella in wrestling by a motion which he could not describe. There was a projection at the knee; the leg was permanently extended. *The patella rested completely on its edge, its articular surface being turned outwards.* The internal half of its circumference was fixed in the articular groove formed by the elevation of the sides of the anterior part of the condyles of the femur.

Reduction.—An assistant raised the thigh, and with one hand M. Combette bent the leg on the thigh, while, with the other, he turned the patella from within outwards. The reduction was effected in an instant, and was followed by slight swelling and weakness. Six months afterwards, in dancing, the same accident happened in a less complete degree; for the patient was able to replace the bone himself. The joint is perfectly well formed.—Another example of the same kind of dislocation of the patella, is also related in the 6th volume of the Journal Generale de Medicine, p. 79.

Lond. Quar. Jour. For. Med. and Surg. No. xii. p. 562.

OIL OF THE CROTON TIGLIUM.

The nuts from which this oil is extracted, were formerly known by the name of molucca grains. Serapion the younger, who wrote in the tenth century, and who was one of the earliest Arabian writers, on the matera medica, mentions the croton tiglium in his work De Simplicibus, c. 261; and observes, "the nuts may be compared to pine nuts," which induced Acosta to style them as such. Mons. Pomet, chief druggist to Louis XIV. who wrote about the end of the seventeenth century, states, in his General History of Drugs—"The Indian pine kernels are little almonds about the size of a pea, but much longer—of a disagreeable taste, attended with great acrimony, and are not easily distinguished from the palma christi seeds, when the latter are not speckled. The use of these kernels is to purge, and it is indeed one of the greatest purgatives we have, which makes it, that we ought not to meddle with them, but with great care and precaution, not venturing to administer them but to strong robust bodies, and giving at once only one, two, or three, according to the constitution of the person." Mr. Hermans says—"The wood of the tigla, called panava, or pavana, operates, when fresh, violently, in doses of a scruple to a half drachm—when dried and long kept, one drachm, and in smaller doses it is a sudorific." In his Paradisus Batavus, the plant bearing the tyle berries is called "ricinus arbor fructu glabro, grana tiglia, officinis dicta."

Mons. Lemery observes—"The ricini of tyle berries are used in medicine, and contain in them plenty of oil and salt; they purge violently all sorts of humours, and may be given in doses of gr. i. to vj. There is an oil made of them by expression after they have been well beat, called in Latin oleum de kerva, oleum cicinum, oleum ficus infernalis. It purges only by rubbing the stomach and belly with it. It kills the worms, cures the itch, deterges old ulcers, and allays the suffocation of the womb. These berries are brought from America, and are called in Latin grana tiglia, tyle berries, or Indian pine kernels, because, in shape and size, they resemble the pine kernels." Other more modern writers mention the croton tiglium, as Murray, Lewis, &c. &c.; the latter places it as the fourth species of the ricinus, and observes—"The seeds are intensely hot and acrimonious, and that Geoffroy limits the dose of the oil to one drachm, which is probably an error in the press for gt. i."

Case 1st. A gentleman, about 30, whose bowels were rather constipated, took gtt.ss. in the form of a pill, and in an hour had three copious liquid evacuations.

Case 2d. A gentleman, 35, of a plethoric habit, whose bowels were sluggish, took gtt.ss., and in an hour gtt.ss. more, without producing nausea, griping, or evacuations.

Case 3d. *My own bowels having been constipated 70 hours, I took gtt.ss. at* half past seven A. M., half an hour after taking the pill, felt a rumbling in the bowels, without nausea or griping; and in 33 minutes after, had a very copious evacuation, consisting of scybalæ and water, which in half an hour, was followed by a second.

Case 4th. A woman, naturally costive, whose bowels had not been open for eight days, took gtt.ss. at bed time, and gtt.ss. more on the following morning, which shortly after operated copiously.

Case 5th. A woman, æt. 30, whose bowels had been constipated between *three and four days, took gtt.ss. every hour and a half; and, after three doses, she was well cleared out, but slightly griped. (Nine other similar cases are related.)*

In some of the above cases, the oil has been occasionally repeated; and in one, after a few doses, the patient returned to his old remedies, which he finds to act much more readily than they used to do previously to his taking the oil. I think, amongst the numerous cases I have given it in, it produces nausea and griping more frequently than Mr. Marshall allows; and a friend informs me, he gave three-fourths of a drop to a lady, who was kept in a state of *sickness nearly three hours after taking it, although it operated freely by the* bowels. In a case of apoplexy, nine drops were given in the course of six hours, in three-drop doses, with no avail; and ten grains of calomel were resorted to, which acted briskly. With regard to its exhibition in cases where abdominal inflammation is present, I can say little, and I think it a question whether it be admissible: a friend, however, mentioned, that it had been given in a case of enteritis with great success, after other purgatives had failed. In cases where doses of six or ten drops have been given, the effect does not appear so satisfactory as where smaller doses have been administered; and I *am inclined to think the oil now obtained is inferior in strength to what has been previously applied.* These observations are made public, in the hope they may fall into the hands of those who have not had it in their power to obtain the oil, or thought it unworthy of a trial; and I hope a candid statement of facts may prove the remedy (although not wholly entitled to supersede others) still deserving a place in our materia medica; and by not having its beneficial effects overrated, that it may not be laid aside, like many others, which from such occurrences, have invariably been found to fail in producing the naturally anticipated result. *Lond. Med. Repos.* No. 97, p. 16.

From Mapleson's Treatise on Cupping.

1. 'The first step in the operation of cupping is to produce a partial vacuum over one or more portions of the surface of the skin.

2. 'The mode now, I believe, universally adopted by regular cuppers, is the momentary introduction of the flame of a spirit-lamp, with a thick wick: the larger the glass, (if properly exhausted,) the less pain does the patient suffer, and the more freely does the blood flow.

3. 'When about to perform the operation, let there be provided a hand-basin with warm water, a piece of fine sponge, and a lighted candle. Place as many glasses in the basin as may be judged requisite to obtain the quantity of blood intended to be taken away. If sixteen or twenty ounces are ordered, four glasses, of a size adapted to the surface, will in most cases be required. Each glass is then separately to be held, for an *instant*, over the flame of the spirit lamp, and immediately placed upon the skin of the patient. Upon the quickness with which this is effected, depends the whole neatness and efficacy of the operation.—To obviate their want of dexterity, many operators in the country throw a little bit of tow or paper, dipped in spirits and inflamed, into the cupping glass, the moment before it is applied; a very clumsy expedient, often adding unnecessarily to the sufferings of the patient by cauterizing the skin, doing harm, also, by rarefying the air more than necessary within the glass, in consequence of which the edges of the cup compress the cutaneous vessels so much as to obstruct the influx of the blood.

* These directions are rendered unnecessary, when we use the Improved Apparatus of Sellers, which was described in our first number, and of which we have given a view in the 204th page.

4. 'If the glasses have been duly exhausted, the skin will be seen gradually to *swell up within the cup*, owing to the pressure of the air upon the parts in the vicinity, as well as to the expansion of the fluids contained in the cellular membrane. The skin becomes also of a dark purple colour, owing to the influx of blood into the smaller vessels. If dry cupping be only intended, the glasses may be allowed to remain on the skin for a few moments, and replaced five or six *times, varying their position a little, to prevent bruising the skin. If the intention* be to scarify and take away blood, the glass ought not to remain more than a minute; when it is to be removed by gently introducing the nail of the forefinger under the edge, and the scarificator *instantly* applied, and the lancets discharged upon the skin, before the tumor has had time to subside. Upon the rapidity or slowness with which the application of the scrificator succeeds the removal of the glass, depend, all the sufferings of the patient. If the skin has completely subsided before the stroke of the lancets, much unnecessary pain is inflicted.

5. 'The glasses are thus to be removed and re-applied successively. They should be a second time removed if necessary, as soon as the blood is perceived to coagulate within them, or when they are so full as to be in danger of dropping off. For the sake of neatness, care should be taken to insert the nail under the upper part of the glass, and open them downwards; gently wiping the wounds at the same time with a warm moist sponge.

6 'The glasses, previous to every application, should be rinsed in the warm water, but not dried. To obviate the unpleasant sensation produced by the coldness of the metal, it is advisable to pass the instrument for a moment over the flame of the lamp before using.

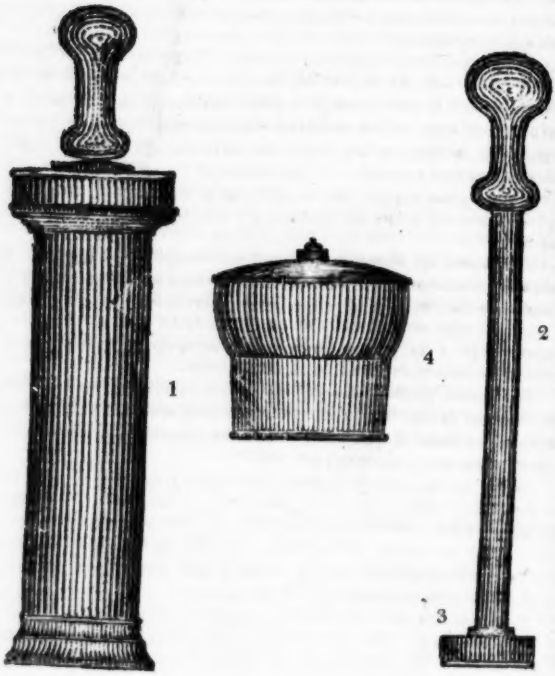
7. 'When the operation is finished, it is common to apply a piece of fine linen rag to the wounds; but, if the patient does not object to a little smarting, either arquebusade water or spirits of wine is a preferable application, as it immediate stops the oozing of the blood, promotes the healing of the wounds, and prevents the subsequent itching, which I have heard some patients complain of, as the most unpleasant part of the operation.

8. 'It is a common error to make the incisions too deep, especially if the object be to take away much blood; being convinced that nothing is gained by going deeper than the cutis, or true skin, while an unnecessary increase of pain is caused to the patient.

9. 'It is certainly preferable to make the incisions in the direction of the fibres of the subjacent muscles; but is is not of much importance, as in my opinion, the incisions ought never to penetrate so deep as the muscular flesh.

10. 'No step in the operation of cupping demands more the attention of the operator than the state of his scarrificators. If not exquisitely keen, they occasion unnecessary pain; if foul or rusty, they may communicate disease, or give rise to festering sores. The lancets or cutters should be kept as sharp and in as fine order as possible, so as to make a clean incision, without bruising or giving fruitless pain.

18. 'The intention of the operation is, I believe, frequently defeated, from want of attention to these apparently trivial circumstances.'



EXPLANATION OF THE ENGRAVING ;

FIGURE 1, A view of the exhausting pump entire. FIG. 2, the piston of the exhauster with its circular leather valve marked 3.

FIGURE 4, the cup with the valve in the centre of its upper surface corresponding to the opening in the bottom of the exhauster.

Description of the instrument in No. 1, page 75.

TO THE PATRONS OF THE WESTERN QUARTERLY REPORTER.

WITH much pleasure we use the opportunity offered by this number, to inform our friends, that the success of the REPORTER *has been such as to gratify our highest expectations, as well as to prove the correctness of the opinion we advanced, that a work like this was much needed here, and that "many persons were eager to assist by contributions of knowledge and pecuniary support." From the states of Kentucky, Indiana, Illinois, Missouri. Louisiana, Ohio, [West] Pennsylvania and Virginia, we have received the most cheering encouragement. We are daily adding to our list, the names of those who desire to increase the diffusion of "*THE LIGHTS OF SCIENCE*" and strengthen the confidence of society in our profession, by uniting in sentiment its widely scattered members.*

Not only is THE QUARTERLY REPORTER *the first periodical journal of the Sciences, that has appeared in the Western Country, but it is the first that we know of appearing under such peculiar circumstances —Published without soliciting subscribers, without having issued a prospectus—unheralded—unrecommended; appealing only to the friends of scientifick improvement for their candid rejection or esteem, they have established it permanently, and inspired the Editor to proceed with a zeal warmed and augmented in proportion to the confidence reposed in him.*

Among other reasons for issuing the REPORTER *in this way, are these. We wished to ascertain the fate of the work; if it failed, we had no complaint to make: if it was successful, we desired our pages to be forever free from the wretched whining about the negligence and bad faith of* subscribers, *which are so frequently seen in periodical works, to the disgrace of the individuals concerned, as well as to the literary reputation of our country.*

The present number, true to its title, is a Reporter of Medical, Surgical and Natural science. From the communications sent to us it may be readily seen that WE HAVE *the support of Physicians and Naturalists of the West; and that their contributions are as valuable, and as perspicuously detailed. as those published in any other quarter. We shall spare no pains to make the Quarterly Reporter as useful as our best endeavours and industrious attention can possibly do. We feel confident that all the lovers of science and letters in the West will continue to assist in extending the sphere of our usefulness, and that every succeeding number will be richly filled with interesting facts and observations relative to the great region we inhabit.*

TO CORRESPONDENTS, &c,

We have been obliged to defer several articles which came too late for insertion, as well as some papers that we had not room for. We shall endeavour to attend to them in our next.

The Practitioners of the Western country are informed that Mr. ROBERT BEST, *of* Cincinnati, *can supply them with* Prussick acid *on moderate terms. We mention this because this substance is decomposed too speedily to allow of its importation, and because from Mr.* BEST'S *great experience and skill in preparing the article, we feel assured of its being in the most approved state for administration. It has lately been used in Cincinnati with great success, and by a number of physicians. We expect to present in our next, an abstract from the different periodical works, of the history of the introduction and success of this singular medicine.*

NEW PUBLICATIONS.

THE first number of the Medical and Physical Journal of New-York, edited by Drs. Francis, Dyckman and Beck, has appeared and is highly spoken of. In our next, we hope to present to our readers some extracts from this journal.

James Webster of Philadelphia, has re-published the London translation of Magendie's Physiology, with considerable additions.

TRANSYLVANIA UNIVERSITY.

William Reid, Ireland—Thesis on Generation.
James Cross, Lexington, Ky.—Cynanche Trachealis.
James P. Parker, Lexington, Ky.—Tabes Mesenterica.
Henry Geo. Doyle, Louisville—Prognosis.
Charles J. Walker, Richmond, Ky.—Dyspepsia.
Robert L. Wiley, Salem, Indiana—The non-contagiousness of Yellow Fever.
James W. Hoggatt, Nashville, Tenn.—Mania.
Henry Miller, jr. Glasgow, Ky.—An inquiry into the relation between the sanguiferous and nervous systems.
Robert Monroe Pearce, Mississippi—On the importance and associability of the human stomach, in health and disease.
Thomas Hunt, Tennessee—Gonorrhœa Virulenta.
Langston Cooper, Boonville, Mo.—Chronic Inflammation of the Liver.
David Pointer, Halifax County, Va.—Dysentery.
G. F. H. Crockett, Delaware—Asthma.
Daniel T. Orr, Woodville, Miss.—Bathing in Febrile Affections.
Joseph N. Bybee, Harrodsburgh, Ky.—Greek Thesis on Intermittent Fever.
Thomas M. Wooldridge, Frankfort—Marsh Miasma.
Walter H. Drane, Russelville—Phthisis Pulmonalis.
James A. M'Pheeters, St. Louis—On the apoplectick state of the system as it occurs in a variety of diseases.
Daniel A. Million, Fayette County, Ky.—An examination into the causes of degeneration of the human species, and the practicability shown of restoring them to their former stature and vigour.
Elihu Kilpatrick, Mississippi—Bilious Fever.
Byran R. Young, Hardin County, Ky.—Dyspepsia, or a derangement of the stomach.
John W. Brite, New-Castle, Ky.—Phlegmasia Dolens.
William. W. Baker, Lancaster, Ky.—Cynanche Trachealis.
Joel Miller, Lexington, Ky.—Secale Cornutum.
Edward C. Drane, New-Castle—Hydrocephalus.
William Dixon, Greenville, Miss.—Dysentery.
William A. Rogers, South Carolina—Dysentery.
J. B. Hopkins, Hopkinsville—Use and Abuse of Calomel.
William H. Price, Franklin County, Ky.—Modus Operandi of Medicines.
Pleasant H. Butler, East Tenn.—Uterine Hemorrhage.
Robert Montgomery, Summer Co. Tenn.—The Medical Topography of Sparta.
Thomas S. Francis, Lexington, Ky.—Typhus Fever.
Josiah Hale, Monticello, Miss.—Teres Lumbricoides.
John R. Abbay, Montgomery Co. Ky.—Cynanche Trachealis.
Thomas D. Singleton, Williamsburgh, S. Carolina—On the influence of intense Study.
James R. Black, Shelbyville, Ky.—Conception.
An honorary degree of M. D. on Walter Brashear, of Lexington, Ky.

MEDICAL COLLEGE OF OHIO.

Hervey Armington, Cincinnati, Ohio—Thesis on the Modus Operandi of Mercury.
John C. Dunlavy, Hamilton, O.—On Epilepsy.
Giles S. B. Hempstead, Portsmouth, O.—On the Epidemick Diseases of the Western Country.
Archibald J. Higgins, Neville, O.—On the Mechanical Powers, as applicable to the cure of Diseases.
John L. Richmond, Newtown, O.—On the Indian Arrow Wood.
Peleg Sisson, Columbus, O.—On Inflammation.
George F. Jaques, Posey county, Indiana—On the Sick Stomach.

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Exhibiting

De

NO.	ORIGIN.	COURSE, RELATIO
FIRST PAIR.	By three medullary tracts 1st, from the corpus striatum. 2d. From the medullary part of the anterior lobe of the brain. 3d. From the fore and under part of the corpus callosum.	Passing forward, adhering to th divides into numerous filaments, triangular, lying over the cribr the œthmoid bone, whence the the nose in two sets :
SECOND PAIR.	From the posterior part of the optick thalami; and from the tubercula quadrigemina or nates.	Whence they may be traced a tuber cinereus; then circling ar cerebri, a division stretches as testes; a connexion also exists posterior tubercle of the thalam nates.
THIRD PAIR.	From the internal margin of the crura cerebri, and the perforated medullary matter betwixt the crura.	Diverging from each other as ward, they go under the anterio tentorium, by the side of the c passing through the foramen lace In the skull they lie between the ry of the cerebrum and anterior c lum.
FOURTH PAIR.	Sometimes by two filaments, more commonly by one undivided root, which emerges from betwixt the medullary lamina of the cerebellum, or valvula Vieussenii and the lower part of the tubercula quadrigemina.	Passes by the side of the pons long course, pierces the dura ma clynoid process, runs some dist or sheath formed by the D. M. pa cavernous sinus; onward throug lacerum to the orbit.
FIFTH PAIR.	From the fore and lower part of the crura cerebelli, where they unite with the pons varolii in two portions; the anterior small and somewhat elevated above the other; the posterior [illegible] than the other; they are	Passes forward and downward lamina of the D. M. opposite to the is here finally attached to the D. flat irregular plexus called the G rtion, whence it sends out three p

NEUROLOGICAL T

ting a view of the Nerve

Dedicated to the Cultivators of Natu

BY JOHN D. GODMAN, M.

SE, RELATION, &c.	DISTRIBUTION AND CONNECTIONS.	FUNCTION.
ard, adhering to the anterior lobe, nerous filaments, soft, pulpy and g over the cribriform plate, of one, whence the filaments go to sets :	One of which passing through near to the septum lies between the periosteum and membrane: the other passes through the cribriform plate, on its lateral and outer part and is spent on the membrane of the nostrils. They communicate together and with branches of the opthalmick, pterygoid, palatine and suborbital nerves.	To communicate the brain, the impr sions made by odoro bodies; whence t sensation of smell.
y may be traced adhering to the then circling around the crura ion stretches as far back as the exion also exists between the cle of the thalamus opticus and	Gradually approaching as they advance towards the sella turcica, they unite just before the infundibulum; afterward separate into two branches, which enter the orbits by the foramina optica, and are expanded to form the *retina* within the globe of the eye, passing through the lamen cribrosum.	To communica the impressions ma by light; whence t sensation of seeing
m each other as they pass for- under the anterior point of the he side of the cavernous sinus the foramen lacerum anterius. y lie between the posterior arte- rum and anterior of the cerebel-	Separate into two branches in the socket; the inferior branch passes forward along the outside of the optick nerve; then this branch terminates in three which go to the adductor, rectus inferior, external oblique and lenticular ganglion. The superior branch of the 3d pair is distributed to the rectus superior and levator palpebræ superioris.	To communicate the muscles of the e nervous power, a subject them to t influence of the wi
e side of the pons varolii after a erces the dura mater behind the s, runs some distance in a canal ed by the D. M. passes above the a; onward through the foramen orbit.	Is finally distributed on the superior oblique muscle of the eye. Sometimes they communicate with branches of the fifth pair, going to the nose.	To supply the mu cle which rolls t eye outward.
rd and downward, enters the M. opposite to the pars petrosa; attached to the D. M. forming a plexus called the Gasserian gan- t sends out three great branches	The first goes to the socket of the eyes and forehead; the second to the upper jaw and face, through the foramen rotundum; and the third goes to the lower jaw and tongue through the foramen ovale. Its branches communicate with all the nerves of the head.	Besides supplying v rious muscles, serv the same purpose the nerves of the he that the sympathet

EUROLOGICAL TABLE,

a view of the Nerves of the

icated to the Cultivators of Natural Science.

BY JOHN D. GODMAN, M. D.

N, &c.	DISTRIBUTION AND CONNECTIONS.	FUNCTION.	COM
anterior lobe, oft, pulpy and form plate, of laments go to	One of which passing through near to the septum lies between the periosteum and membrane: the other passes through the cribriform plate, on its lateral and outer part and is spent on the membrane of the nostrils. They communicate together and with branches of the opthalmick, pterygoid, palatine and suborbital nerves.	To communicate to the brain, the impressions made by odorous bodies; whence the sensation of smell.	In the *Mammalia* the same for difference of size and v to the cavity of the nose. skate and shark, so large a brain; forming a large bulb the nares. In some fishes which is separated by a cr passes to the nose. In oss membrane. The Genera nasal extremity, partly cin
hering to the und the crura ar back as the between the s opticus and	Gradually approaching as they advance towards the sella turcica, they unite just before the infundibulum; afterward separate into two branches, which enter the orbits by the foramina optica, and are expanded to form the *retina* within the globe of the eye, passing through the lamen cribrosum.	To communicate the impressions made by light; whence the sensation of seeing.	In *Mammalia* generally tis and choroides undivide rises, having transverse m guish any union; each ner forms a round white line, nerve forms a tubercle wh osseous kind, the nerves c side of the brain going to t have observed the same fa are fibrous, in others lami
they pass for- r point of the venous sinus erum anterius. posterior arte- of the cerebel-	Separate into two branches in the socket; the inferior branch passes forward along the outside of the optick nerve; then this branch terminates in three which go to the adductor, rectus inferior, external oblique and lenticular ganglion. The superior branch of the 3d pair is distributed to the rectus superior and levator palpebræ superioris.	To communicate to the muscles of the eye nervous power, and subject them to the influence of the will.	In *Mammalia* the third there is no spheroid fissur nerves of the eye and is *Reptiles* corresponding g nearly as in the others.
s Varolii after a es behind the ssue in a canal ses above the h the foramen	Is finally distributed on the superior oblique muscle of the eye. Sometimes they communicate with branches of the fifth pair, going to the nose.	To supply the muscle which rolls the eye outward.	In *Mammalia*, as in man nearly the same.
d, enters the ne ters petrosa; forming a Gasserian gan-	The first goes to the socket of the eyes and forehead; the second to the upper jaw and face, through the foramen rotundum; and the third goes to the lower jaw and tongue through the foramen ovale. Its branches communicate with all the nerves of the head	Besides supplying various muscles, serves the same purpose to the nerves of the head that the sympathetic	In *Mammalia*, as in the smaller according to the di the 2d and 3d portions are branches to the beak cor branches to the inside of t

	Sometimes by two filaments, more commonly by one undivided root, which emerges from be-		Passes by the side o long course, pierces th

LE,

f the Head.

ɔcience.

COMPARATIVE ANATOMY.	SYNONYMA.
Mammalia the same origin, distribution, communication and use, allowing ence of size and variation of structure. *In birds* passes in a distinct canal vity of the nose. *In reptiles*, much the same as in birds. *In fishes*, as the l shark, so large at their origin as to resemble the anterior lobes of the rming a large bulb at their roots from which the nerve passes towards . In some fishes slender at first, afterwards forming a large ganglion separated by a cribriform membrane from the nostril through which it the nose. In osseous fishes, long, slender; surrounded by a cartilage or ne. The Genera *Gadus* and Cyprinus have a peculiar ganglion at the remity, partly cineritious.	Olfactory nerves. Carunculæ mamillares. 8th pair. *Spigel.*
mmalia generally as in man; in the hare and rabbit perforates the sclerohoroides undivided, forming a sort of cup from whose edges the retina ving transverse medullary fibres in it. In *birds* it is difficult to distiny union; each nerve passes through a sheath of the sclerotick coat, then round white line, whence grows the retina. In *Reptiles*, the optick rms a tubercle which sends off the retina. In *Fishes*, especially of the kind, the nerves cross each other without uniting; that from the right he brain going to the left eye, and that from the left to the right eye. I erved the same fact in the snapping turtle. In some fishes these nerves us, in others laminated.	Primum par. Nervus visivus seu visorius.
mmalia the third pair goes through a hole appropriated to it, where no spheroid fissure, either singly or in company with some of the other f the eye and is distributed as in man. In *Birds* as in mammalia. In corresponding generally to those of birds and mammalia. In *Fishes* s in the others.	
mmalia, as in man. In *Birds*, the same. In *Reptiles*, similar. In *Fishes*, e same.	Nervus qui propeates oritur *Eustach:* minor propago 3tii paris; i. e. 5ti recentiorum, *Vesalii*. 9um par *Columb: et Cortes.* Trijumeaux *Winslow*. 3tium par *Fallopii et Vesalii*. Nervus anonymus trigeminus.
mmalia, as in the human species, divided into three branches, larger or according to the difference of form. In carnivorous animals, as the *tiger*, nd 3d portions are remarkably large. In *Birds* similarly divided, the s to the beak correspond to those about the jaws in mammalia; the s to the inside of the nose very large in such as seek food in water,	
ses by the side of the pons Varolii after a course, pierces the dura mater behind the d process, runs some distance in a canal	is mainly distributed on the superior oblique muscle of the eye. Sometimes they communicate with branches of the fifth pair, going to the nose.

rian gan- tongue through the foramen ovale. Its branches com- the nerves of the head that the sympathetic branches to the beak branches to the inside

FOURTH PAIR.	Sometimes by two filaments, more commonly by one undivided root, which emerges from betwixt the medullary lamina of the cerebellum, or valvula Vieussenii and the lower part of the tubercula quadrigemina.	Passes by the side long course, pierces clynoid process, run or sheath formed by cavernous sinus; on lacerum to the orbit.
FIFTH PAIR.	From the fore and lower part of the crura cerebelli, where they unite with the pons varolii in two portions; the anterior small and somewhat elevated above the other; the posterior rises somewhat lower than the other; they are connected by cellular membrane.	Passes forward a lamina of the D. M. o is here finally attach flat irregular plexus gfion, whence it send
SIXTH PAIR.	Apparently from between the pons varolii and medulla oblongata; variously described by authors. It may be said to arise from the corpora pyramidalia; sometimes by two branches, which do not unite until they are entering the cavernous sinus.	Passes forward and and sometimes below trates the dura mate sinus: thence by the descends with it until of the vidian nerve origin of the great s thetick is received b
SEVENTH PAIR.	Arises from the posterior and lateral part of the pons varolii; by two fasciculi, arising together and passing into the foramen auditorium internum. The anterior of lesser fasciculus is a common nerve, and goes to the face, called from its density, portio dura. The posterior fasciculus is the auditory nerve, or portio mollis.	The portio dura in the internal auditory fore part of the audit
EIGHTH PAIR.	Composed in relation to the brain of three portions. { 1 The glosso-pharyngeal, 2 Par Vagum, and 3 Spinal accessory nerves. Taken altogether they arise from the superior and lateral part of the medulla oblongata.	1st. Is only disting large filament of th dura mater separatel 2d. Is composed o ments which are som four fasciculi, somet series like the nerves 3d. Comes up fron vagum, it begins by rior roots of the 4th, vical nerves.
NINTH PAIR.	By several filaments from between the corpora olivaria and pyramidalia; the filaments pierce the dura mater separately; then uniting	The nerve passes dyloid foramen, adhe ving branches from t ft communicates wit accessory, sympathe and with the branche

ticular ganglion. The superior branch of the 3d pair is distributed to the rectus superior and levator palpebræ superioris. influence of the will. nearly as in the others.

ches to the inside of the nose very large in such as seek food in water,

nonymus trigeminus.

Passes by the side of the pons varolii after a
g course, pierces the dura mater behind the
noid process, runs some distance in a canal
sheath formed by the D. M. passes above the
vernous sinus; onward through the foramen
erum to the orbit.

Passes forward and downward, enters the
nina of the D. M. opposite to the pars petrosa;
here finally attached to the D. M. forming a
irregular plexus called the Gasserian gan-
on, whence it sends out three great branches

of the eye. Sometimes they communicate with branches of the fifth pair, going to the nose.

The first goes to the socket of the eyes and forehead; the second to the upper jaw and face, through the foramen rotundum; and the third goes to the lower jaw and tongue through the foramen ovale. Its branches communicate with all the nerves of the head.

Passes forward and upward, sometimes above
l sometimes below the basilar artery; pene-
tes the dura mater by the side of the basilar
us: thence by the side of the carotid artery,
cends with it until they are joined by a branch
the vidian nerve, these together form the
gin of the great sympathetick, or the sympa-
tick is received by them at this point.

The sixth pair enter the orbit by the foramen lacerum, along with the third, fourth and first branch of the fifth. Pierces the abductor muscle of the eye, before it is finally distributed to its substance.

The portio dura in passing from the brain to
internal auditory foramen is lodged in the
e part of the auditory nerve as in a groove.

The portio dura emerges from the stylo mastoid foramen; coming out between the lower jaw and ear, covered by the parotid gland. While passing through the temporal bone receives a retrograde branch of the Vidian nerve. It sends several branches to the muscles of the ear; and a remarkable branch which crossing the tympanum is named chorda tympani. This branch joins the gustatory branch of the maxillary of the 5th pair. The portio mollis is expended on the internal ear.

st. Is only distinguished within the skull as a
ge filament of the 8th pair, perforates the
a mater separately from these.
d. Is composed of 10 or 12 very small fila.
nts which are sometimes united into three or
r fasciculi, sometimes they arise in a double
es like the nerves of the spine.
d. Comes up from the spine to join the par
um, it begins by small twigs from the poste-
roots of the 4th, 5th, 6th and even 7th cer-
l nerves.

1st. Is distributed on the upper part of the throat and tongue, terminating with the branches of the 5th, 8th and 9th pairs.

2d. Is the great and important division of the 8th pair, it sends branches to all the upper parts of the throat, then continues its course towards the chest betwixt the carotid artery and jugular vein in the same sheath sends nerves to the lungs, to the stomach and diaphragm, communicates with the other nerve at the top of the throat, and with the great sympathetick.

he nerve passes through the anterior con-
id foramen, adhering to the 8th pair, receiv-
branches from the first cervical nerve.—
ommunicates with the eighth pair, spinal
ssory, sympathetick, cervical phrenick,
with the branches of the 5th pair.

It gives off a branch under the occipital branch of the carotid artery, called DESCENDENS NONI, which goes to the muscles of the front of the neck. The great trunk of the nerve goes to the muscles of the tongue, lower jaw, and sub-maxillary glands. It terminates by numerous filaments in the tongue.

e others.

rior arte- e cerebel- lii after a behind the in a canal above the he foramen	ticular ganglion. The superior branch of the 3d pair is distributed to the rectus superior and levator palpebræ superioris. Is finally distributed on the superior oblique muscle of the eye. Sometimes they communicate with branches of the fifth pair, going to the nose.	influence of the will. To supply the muscle which rolls the eye outward.	nearly as in the others. In *Mammalia*, as in man, nearly the same.
enters the petrosa; forming a rian gan- branches	The first goes to the socket of the eyes and forehead; the second to the upper jaw and face, through the foramen rotundum; and the third goes to the lower jaw and tongue through the foramen ovale. Its branches communicate with all the nerves of the head.	Besides supplying various muscles, serves the same purpose to the nerves of the head that the sympathetic nerve does to the rest of the body. The nerves of GUSTATION are branches of this pair.	In *Mammalia*, as in the smaller according to the di the 2d and 3d portions ar branches to the beak cor branches to the inside of mud, &c. In *Reptiles* as i cles behind the cerebellu branches, and they are di In the skate the third bra issue as from a centre at th
hes above ; pene- basilar id artery, a branch form the e sympa- nt.	The sixth pair enter the orbit by the foramen lacerum, along with the third, fourth and first branch of the fifth. Pierces the abductor muscle of the eye, before it is finally distributed to its substance.	To communicate to the abductor muscle nervous power and subject it to the influence of the will.	In *Mammalia*, as in man *Fishes*, the same.
brain to d in the groove.	The portio dura emerges from the stylo mastoid foramen; coming out between the lower jaw and ear, covered by the parotid gland. While passing through the temporal bone receives a retrograde branch of the Vidian nerve. It sends several branches to the muscles of the ear; and a remarkable branch which crossing the tympanum is named chorda tympani. This branch joins the gustatory branch of the maxillary of the 5th pair. The portio mollis is expended on the internal ear.	The office of portio dura is to supply the face and upper part of the neck. The portio mollis is the proper nerve of hearing.	In *Mammalia*, as in ma extent of the different pa *mollis*, as in man. In *Bird mollis* is of great size, and similar. In *Fishes*, the *po* from the brain quite distin the fifth pair as to appear the *skate*, it passes into th where the ear is in the sam on that organ.
he skull as a forms the y small fila. nto three or in a double bin the par th poste- en with cer-	1st. Is distributed on the upper part of the throat and tongue, terminating with the branches of the 5th, 8th and 9th pairs. 2d. Is the great and important division of the 8th pair, it sends branches to all the upper parts of the throat, then continues its course towards the chest betwixt the carotid artery and jugular vein in the same sheath sends nerves to the lungs, to the stomach and diaphragm, communicates with the other nerve at the top of the throat, and with the great sympathetick.	Its great office is to supply the stomach and lungs.	In *Mammalia*, nearly as In *Fishes*, the eighth pair bution. It is divided into the second to the muscles under the skin as far as th
er or con- ir, receiv- nerve.— ir, spinal phrenick,	It gives off a branch under the occipital branch of the carotid artery, called DESCENDENS NONI, which goes to the muscles of the front of the neck. The great trunk of the nerve goes to the muscles of the tongue, lower jaw, and sub-maxillary glands. It terminates by numerous filaments in the tongue.	To supply the muscles of the tongue, and communicate the influence of the will. Some have thought it the nerve of gustation.	In *Mammalia*, nearly a In *Fishes*, appears to be wa

corresponding precisely to those of birds and mammals. In *Fishes* in the others.

mmalia, as in man. In *Birds*, the same. In *Reptiles*, similar. In *Fishes*, e same.

Nervus qui prope ates oritur *Eustach:* minor propago 3tii paris; i. e. 5ti recentiorum, *Vesalii*. 9um par *Columb: et Cortes*.

Trijumeaux *Winslow*. 3tium par *Fallopii et Vesalii*. Nervus anonymus trigeminus.

mmalia, as in the human species, divided into three branches, larger or according to the difference of form. In carnivorous animals, as the *tiger*, nd 3d portions are remarkably large. In *Birds* similarly divided, the s to the beak correspond to those about the jaws in mammalia; the s to the inside of the nose very large in such as seek food in water, . In *Reptiles* as in mammalia. In *Fishes*, the 5th pair rises from tuberind the cerebellum which are very large in the ray; divides into three , and they are distributed in a mode analogous to the other genera. tate the third branch suddenly disappears on the mucous ducts which rom a centre at the outer and back part of the eye.

mmalia, as in man. In *Birds*, the same. In *Reptiles*, the same. In ie same.

Par oculis prospiciens: 8vum par; *Bauhind*. oculo-musculaires, ou moteurs externes de *Winslow*. Radix gracilior paris 5ti, i. e. 7i recentiorum. *Vesalius*. 4tum par *Fallopii*.

mmalia, as in man; the *portio dura* differs according to the form and f the different parts of the face on which it is dispersed. The *portio* in man. In *Birds*, the *portio dura* is proportionally small. The *portio* of great size, and goes to the labyrinth in many branches. In *Reptiles*, In *Fishes*, the *portio dura* is large in the *Cartilaginous* and comes off brain quite distinct from the auditory. The *portio mollis* lies so near pair as to appear to be a branch of that pair. In the cartilaginous, as, it passes into the ear by a single foramen; in the osseous, as the cod e ear is in the same cavity as the brain; the nerve is directly dispersed rgan.

Le petit sympathique *Winslow*. Nervus communicans faciei. Portio dura. Distinctus a molli nervus. *Fallop*.

mmalia, nearly as in man. In *Birds*, the same. In *Reptiles*, similar. , the eighth pair is remarkable on account of its great size and distri- It is divided into three portions, one going directly to the branchiæ; nd to the muscles of the tongue and œsophagus; and the third extends e skin as far as the tail.

Le moyen sympathique, *Winslow*. Nervus sextus, Galeni etc.

mmalia, nearly as in man. In *Birds*, the same. In *Reptiles*, similar, appears to be wanting.

Par linguale medium vel nervus lingualis medius. *Haller, Sœmmering*. The hypoglossal, *sublingual* or gustatory. 7um par Vesalii etc.

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THE
Western
QUARTERLY REPORTER
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Medical, Surgical, and Natural Science.

No. III.

ARTICLE I.

MEDICAL EXCELLENCE.

WHATEVER circumstances may casually operate to make the profession of Medicine unpleasant to some individuals engaged in the practice, there are many sources of gratification open to the physician, which are scarcely imagined by other men. He has it in his power to attain a popularity which may not be as profitable as that of the statesman, but which is infinitely more agreeable, because it is the spontaneous offering of grateful minds, elicited by benefits personally conferred. He may acquire a fame, durable and extensive, without sacrifice of principle; he may win a place in the love, as well as the memory, of mankind, if, by a judicious exercise of talents and industry, he will render himself worthy of their affection and regard.

In the rude and uncultivated state of society, while the great body of mankind were ignorant of themselves and unacquainted with the other works of nature, it was natural that those who were employed in the cure of diseases, should be looked upon as gods, and the art which they cultivated, should be esteemed divine. The impatience of pain, and love of life, so

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common to men, readily induced them to appreciate highly an art which was productive of the alleviation of suffering and disease, and restored them to the exercises and enjoyments of life. We find therefore the early physicians ranked with the gods, and their posterity, during many succeeding generations, treated with much veneration. The descendants of Esculapius, and the family of the Hippocratides, long retained the glory which they inherited from their progenitors, to whom it had been originally attributed, more, perhaps, from veneration for the profession itself, than for any peculiar excellence which they possessed.

But in proportion as discoveries were accumulated, and modes of thinking improved, the estimate formed of the true value of Medicine, and of those who professed it, varied, and was tested by more precise rules. It became necessary that some standard should be established, not only because of the changes which had taken place in the profession, but because of the great increase of those who aspired to its honours and rewards. Hence it is no longer sufficient for a man to be a member of the Medical Faculty to insure him reverence and esteem: it is necessary that he should also possess talent, which is to be proved by the actions he performs for the benefit of society and the honour of his profession.

To assist such as are desirous to gain that elevated reputation which so many solicit and so few acquire, it may be well to examine the circumstances which contributed to produce that degree of excellence by which some of our greatest medical men have attained their exalted fame. As an additional inducement to this inquiry, we can state that the examples we are about to propose as worthy of attentive consideration, owed their great advancement to causes which may be brought into operation by almost every one, and that there were few traits exhibited by them which are not easy of imitation.

Among those who have added lustre to their profession, and to their countries, and who have done honour to the human race, the justly celebrated Boerhaave stands unquestionably pre-eminent. In the history of Medicine, the period of his existence forms an epoch, which can never be forgotten, as long as letters are cherished. He is one of the few who has left behind him a name which is equally to be revered when he is

considered as a great philosopher or as a citizen. He lived a life which speaks to posterity more loudly in his praise, than even the records of his own triumphs over every difficulty in the pursuit of knowledge.

Dr. Boerhaave, solely by the aid of method and industry, gained a portion of scholastick education that appeared wonderful even to his cotemporaries, and seems more so at this time when such acquisitions are not so generally sought. He studied with ardour the profession to which he had devoted himself; laboured with indefatigable diligence to improve its condition, and offered an example of the most attractive kind to those who were engaged in similar pursuits. He studied to simplify and systematize the principles and facts on which the profession was based; he avoided the introduction of obscurity and mysticism, as far as possible, in his explanations of the causes and treatment of disease, and gave by his writings and powerful eloquence, a new character to Medical Science.

In all of this we have to admire Boerhaave, but it may be said that few persons are called on, like him, to fill high publick offices, and therefore have it not in their power to acquire such excellence of character. But the peculiar excellence of Boerhaave is to be sought, in his manner of performing his duties as a man and citizen—as a friend and physician. His habits of study we have already adverted to. The simplicity and ingenuousness of his manners—his freedom from affectation—his zeal as a teacher of his pupils, and the regard he uniformly manifested for the feelings of all those with whom he was concerned, may be imitated by every one who feels disposed. His piety, his patriotism, his long sustained and unblemished reputation in private life, as well as his cultivation of all useful knowledge, are equally worthy of consideration, as circumstances conducing to his reputation, and if imitated, may be equally conducive to the reputation of others. To feel that man is a noble creature, and suited to high destinies, it is sufficient to read the life of Boerhaave. To discover the requisites to the acquisition of true fame—of durable glory, the history of Boerhaave may be perused with a certainty of seeing them displayed throughout his habits and actions.

With the private history of the great Cullen, we are not so familiar; with his works we are better acquainted: in these

he has evinced very clearly, that the great excellence of his mind was a correct appreciation of the useful, the simple, and the methodical throughout his professional labours. He was deeply imbued with learning, which he studied as the means for further improvement, not as the object of his labours. That learning he did not employ to impress an idea of his acquirements on his readers, but as an expositor of his thoughts, and an illustrator of his deductions. Clear and logical in his inferences, he generally freed the way of his successors from difficulties, and where he wanders from fact to theory, he errs less from his own weakness than from the defective state of the science in his time. That he was generally beloved, is true, and speaks favourably for the manners which he exhibited in private life. That he has left behind him a reputation which strengthens with the lapse of time, is most probably as much owing to his habits of methodical application and the urbanity of his manners, as to the more publick and official acts of his life. His name is also inseparably connected with the history of Medicine; his attainments and excellence, as an inquirer into the works of nature, should be ever before the eyes of the physician, emulous to excel in every thing that is laudable.

We might here pass in review before us, a host of admirable and excellent physicians of foreign countries, but there is no necessity for seeking out of our native land, for those who have adorned and honoured our profession; men who raised themselves to the summit of fame by displaying most excellent talents and manners; who have been benefactors to their race, and have indelibly attached their names to our Medical and National History.

Where indeed could an example of Medical excellence be found to be compared with Rush, who has been properly styled "*immortal.*" If we inquire into his history and trace him from the earliest period of his life, we find him excelling in every effort, those by whom he was surrounded. His ardour for the acquisition of knowledge, and his zeal in his professional avocations, were only equalled by his industry and urbanity. His skill as a physician and a publick teacher—his amiable manners as a citizen and a friend—his keen spirit of investigation and love of truth—his eloquence—his genius—have not often been excelled abroad, and are too little studied as models at home.

To the labours of this great man do we owe a vast amount of the improvement in the condition of Medical Science throughout the United States. The influence he acquired by his lectures was immense, and he continues to exert an influence by his writings over the practice of Medicine, which is of great advantage. He was one of the first to declare his entire conviction of the non-contagiousness of Yellow Fever. The experience he had in this terrible disease, of necessity gave great weight to his opinion. By this decision the malady was stripped of half its terrors. The invaluable truth, has yearly been confirmed by the united testimony of physicians in all quarters, except here and there some solitary instances are to be found, of men, bigoted and chained by prejudice to their ancient superstition, and who still *say* that the Yellow Fever is contagious: this poor satisfaction may be safely allowed them. Mankind will no longer believe in a doctrine which is every year disproved by their own observation.

Without attempting to dwell on the writings of Dr. Rush, which have acquired more celebrity than those of any other American physician, we shall express a hope, that in admiring his great talents and performances, his industry and patient study will not be forgotten. The manners which gave so great a charm to his conversation, we cannot pourtray, farther than to repeat that they were polished and refined—graceful and gentle; winning the love of all who came near him, and awakening admiration in such as were admitted to his intimacy. His reputation has long since become a national property; his errors are so far overbalanced by his excellencies, as to be now no longer remembered, and time, which hourly buries the memory of more ephemeral agents in oblivion, leaves that of Rush still brightening into higher splendour.

To pursue so pleasant a theme as far as we might feel inclined, would lead us beyond the limits that are allowed. We are anxious to arouse those who are setting out in their career, to think of gaining more than mere subsistence by their exertions; to persuade them to study the characters of those who are known as the best and brightest of our profession, and discovering that they arose by the exercise of talents and virtues which are to a certain extent common to all men, they may improve their habits and manners by following their examples.

They should never be deterred from striving, by the entire reputation which any great personage has attained, but examine the particulars on which it is built. It will then be seen that a great number of small parts go into the constitution of the whole, and that there is no reason why they may not be employed by another person in the erection of a similar fabrick.

The peculiar pleasures of the Medical practitioner, are such as arise from the discharge of his duties. They spring from a consciousness of his often being instrumental in preserving or bestowing happiness on those by whom he is employed. These feelings are not so few or so seldom repeated as many imagine. To gain the love and confidence of a great number of his fellow creatures, and to retain possession thereof by the daily exercise of the same talent and good conduct which originally produced it, throws over life a charm which it can scarcely receive in any other way. If he be once thus beloved, and his conduct be unimpeachable, he is in possession of pleasures which are almost unalloyed; he feels himself to be necessary to the comfort and happiness of many; knows that their kindness is the offering of grateful feelings, and sees that he is respected in reality—not honoured in show.

If numbers of those who are engaged in the profession, do not enjoy such pleasures at the proper time, it is because they have not studied the true character of Medical Excellence, nor examined the causes which produce the elevation of others. Many men spend years in the pursuit of professional reputation, without once reflecting whether they are pursuing it aright. Among these the cringers and flatterers are the most numerous of the disappointed, although for a time they think themselves secure of success. But meanness, sooner or later, receives contempt, and every generous mind spurns at that baseness which yields to be of every man's opinion, however inferior in capacity. Tricks of all kinds, whether played off on the ignorance of one sex or the weakness of the other—whether attempted by a pompous affectation of superior wisdom, or a studied effort to display a *profound* mind, eventually meet the fate they merit. The contempt of the better part of society is sure to follow, and is destructively severe.

The way to the object desired, is much clearer when we make use of such means as we have alluded to, the employment

of plain and unostentatious virtues as our assistants. Although they excite less astonishment, and show not so gaudily, their odour is grateful, and they are followed by much fruit. Those who attempt to establish a character by deviations from this path, generally are soon lost, and are no longer regarded; while such as study to render themselves acceptable to their fellow creatures by becoming useful and excellent, are continually the subjects of observation and interest.

While the members of our profession are engaged in studying the best models, with the view of emulating their excellencies, or avoiding their errors, they are acquiring habits of mind which will tend to lift them above those feelings which produce the evils we have heretofore regretted as too common in the Medical world. No man can understand and sincerely admire the character of a celebrated member of his own profession, without wishing, at least, to resemble him; and the wish to pursue his steps, will often be followed by effective exertions. Why a physician should not be as anxious to gain a high character for excellence in all the relations he bears to society, as well as to subsist, we cannot understand. Why physicians should not make an effort to free their calling from those imputations which are as true as they are painful, and to rise superior to those petty jealousies and heart burnings, which so often mar their influence and usefulness, is a question that we hope will ere long be rendered unnecessary. If we can be instrumental in exciting even a few to exert themselves to place their profession on its proper foundation, it will confer more pleasure, than to receive a laurel wreath for an ambitious composition, or to acquire great fame by flattering the follies or the pride of such as would wish to be thought the heads of our profession. Our motive for writing on this subject, will be appreciated by all those who have thought on the dignity and value of our office in society; if it induces others to write more interestingly and usefully on the same topick, we shall not regret this effort, to which we are led by our anxiety to have our profession properly respected.

ARTICLE II.

PHRENOLOGY.

EENEN KWADJEN KOP HEBBEN IS KWADARTIGLIJK; MAAR HIJ IS WEZENLIJK ENVOUDIG WIE NATUUR HET VOLMAAKEN VERGESS, EN WIE IS TEN EINDE ZIJNE ONTBREEKINGS STRAFF.

Carbonarius; Panologia, Lib. CCLV.

DR. GALL, of Vienna, about the beginning of the present century, commenced his observations on the peculiar talents and dispositions of his fellow students, and subsequently extended his researches to others. He satisfied himself that a certain rising or protuberance of the skull was always present in individuals remarkable for any talent or disposition of mind. As his researches were multiplied, he thought he could mark out on the skull regions to which the developement of particular character belonged, and by applying this knowledge to unknown individuals, he could determine what were their dominant talents or dispositions. Every talent being exhibited by the aid of a proper organ, which organ si a rising or developement of the brain, answering to the projection on the surface of the skull; in proportion to the perfection of the instrument, would be the perfection of its action. The greater number of intellectual qualities requiring the developement of a greater number of organs, the inference was direct, that mental energy must be in the ratio of the quantity of the brain.

Dr. GALL states that "the brain, instead of being the organ of thought, is made up of a great number of distinct organs, whose existence, alone, renders that great diversity of talent possible, which distinguishes the different individuals of the same species from each other. Every one of the nervous streaks perceived in the great ganglion of the brain, makes a particular circumvolution of the hemispheres, and is to be considered the organ of a particular function of the mind; that is, each streak may be looked on as a part on which the mind operates according to a determined degree of force, and its structure is so organized as to receive the impressions communicated to it."

"The inference of the physiologist would avail him but little, unless some certain connexion were ascertained between the brain and its permanent covering, the skull. This connexion

is *asserted* in the following fundamental proposition:—'that the internal lamen of the skull is, during the life of man, continually formed by the brain itself; and that therefore, where the internal and external plates of the skull run parallel, we may infer the form of the brain from the outward shape of the skull.'"

"On this [*asserted*] fact, and on that before stated, that each of the circumvolutions of the brain consist of an organ of some intellectual or sensible power, the greater size or developement of which would of course give the skull its peculiar shape, rest the sciences of *Craniology* and *Cranioscopy*, the first of which asserts that the shape of the skull indicates the law by which not the actual character, but the tendencies and dispositions towards character in men are determined.

"All the organs, and all the predispositions in men and animals, are innate. The functions of the brain are threefold: 1st, Organick life; 2d, Sensitive life; and 3d, Intellectual life. A particular part of the brain is assigned to each of these functions. In proof of the plurality of organs, Dr. GALL offers the following arguments: 1stly, the sense of fatigue arising from the mind being long employed in one subject of contemplation; and the relief and delight we experience from variety; 2dly, the various degrees in which the different faculties are possessed by different individuals; 3dly, the loss of certain faculties and powers of the mind from wounds, diseases, &c. affecting certain parts of the brain."

That individuals differ in talent and character, is a fact known since the beginning of human society, and proved by the daily experience of every man. But that each variety of talent, or every affection of the mind, is caused by a *developement* of brain, discoverable by a projection of the skull, is untenable, for the following reasons.—Notwithstanding the *assertion* that the internal lamen of the skull is formed by the brain, every rational and experienced physiologist will agree, that this is but an assertion. The brain is enveloped by its appropriate membranes, from the external of which, the dura mater, vessels pass through to inosculate with the membrane under the scalp, the pericranium. Between these two membranes the rudiments of the bones are laid out, and, at the time of birth, they are, in healthy children, to a considerable degree perfected. But these bones of the head are composed of numerous pieces,

joined together by sutures, and they are made up of three plates or tables, although these are not in every instance accurately defined. The outer table is possessed of much firmness, and is of a close texture; the middle is of a soft spongy character, and the internal is so close and dense as to have received the name of vitrea or glassy. At the points where ossification commences on the surface of these bones, there is always an observable eminence, and the bone is thicker here than elsewhere. The junction of the sutures is also somewhat thicker than the other portion of the bones. In a majority of cases it will be found that where there is any deviation from the semicircular line on the surface of the hemispheres, this is accommodated not by a bulging outwards of the whole thickness of the skull, but by an approximation of the inner and outer tables. Thus a very considerable swell may exist on the surface of the brain without any mark of it being perceptible on the outside. But Dr. GALL has placed the organs, in some instances, in situations where the developement of the brain, even if it existed in the degree desired, could not, in the nature of things, affect the skull, as in those organs placed over the centre of the brain, where the bones forming the side walls of the head meet, and under which there is a spine or bony ridge and a large vein or sinus, not to add that immediately under this part is the division of the brain into two hemispheres. The organs also placed about the edge of the orbit of the eye, must in like manner be deceptive, for here there is a large cavity or series of cells existing between the plates of the bone and belonging to the apparatus for the voice. The frontal sinuses, as they are called, in many individuals, extend to a considerable distance up the forehead, and are very irregular in their figure and size. Again, he has described organs in situations where they are covered by strong and thick muscles, and where they cannot be discovered if they did exist; but we cannot agree that there is any ground for a belief in their existence. The organs of the body destined to fulfil given offices, are all possessed of a certain symmetrical arrangement of parts; are uniformly to be found in the same place in the majority of individuals of the same species, and are never wanting without constituting a deformity or monstrosity. There are in the brain certain symmetrical arrangements of texture, which are un-

doubtedly organs of importance, although we are ignorant of their proper functions, as we are of many other organs of the body. That they are important organs, is evident from the uniformity of their existence in every individual, and from the uniformity of their existence in the same relative position. Such are the thalami nervorum opticorum, corpora striata, commissuræ, tubercula quadrigemina, crura cerebri et cerebelli, infundibulum, glandula pinealis, corpora albicantia, olivaria et pyramidalia, &c. All these parts are either on the internal surface of the ventricles, or the inferior surface or base of the brain. The convolutions of the brain enwrapped by the pia mater and forming all the superior and external surface of the brain taken as a mass, are undoubtedly a part of a great organ. But as their structure is unquestionably homogenous, and their symmetrical arrangement, as far as we can discover, the same throughout, we are forced to conclude that they are only parts of a common organ, and not made up of a number of smaller organs, except such as are subordinate to the general effect. Thus if we were to examine the livers of very many subjects, we might find numerous varieties in the external figure of the organs when compared together, and in the number of slight projections from their surfaces. Yet we should never suppose that these projections constituted organs for the performance of different functions, although the mass is made up of an assemblage of subordinate instruments, as the acini, &c &c. The brain, with its peculiarity of structure, may, in the following way, be compared to the stomach, duodenum, and other bowels. The ventricles and parts having an individual and peculiar symmetry, hold the place similar to the stomach and duodenum; the circumvolutions of the hemispheres that of the small intestines: the former have a peculiar structure and a peculiar function; the latter have a general or common structure, and their function is also common. The first are complete in themselves, and discharge a single duty; the last are but links of a common chain, which, separated, would be entirely useless; while acting together, they are capable of effecting every thing proper to them.

As no one has yet discovered on the surface of the brain, any thing like an organization differing from the convolutions, and as variations in the figure of the surface of the hemispheres

may and do exist without affecting the external of the skull—and as peculiar symmetry of organization is the only mark of peculiarity of function, we hold it to be demonstrable by the fairest reasoning and the most rigid induction from facts, that the circumvolutions of the brain are concerned in a common function, and that they constitute part of an individual organ. In addition, we may state that an appreciable variation or enlargement of the surface of the brain cannot be discovered in the majority of cases after the removal of the covering membranes, although we have heard the story of Dr. Spurzheim having decidedly pointed out the dispositions and propensities of a person whose brain was removed from the skull without the person having been seen by the Doctor during life. We could give credit to even more than this: we believe the Doctor could have decided *full as well* on the character of this man, had the brain been *hashed* and served up to him smoking.

It seems somewhat hard, that organs should be allowed only for a certain number of the qualities of the mind. If one propensity requires a peculiar organization, how can another exist without a similar cause? According to Dr. Gall's system, there should be such organs; but the surface of the skull, nay, even the upper part of the face, is entirely occupied with organs marked out, and therefore more cannot be designated. True, they may be supposed to exist somewhere in the brain; but they will spoil the theory, if not on the surface, as it has already been stated that the developement of an organ at a little distance from the surface, will lead to error by causing the substance over it to project, although this external organ be not developed.

The God of Nature has gifted us with various organs of sense, all admirable in their kind and excellent in their degree. Every man who has not the ordinary number of these organs, or has them not in their ordinary state of perfection, is to the same extent inferior to his fellow creatures in usefulness and responsibility. Why are all men gifted with similar senses? but that they may receive similar impressions from similar agents, and be able to communicate intelligibly with one another. The man who should exclaim that fire made him *cold*, or that ice *burned* him, would be deemed either mad or defective in the organs of sense. If possessed of organs of sense in

the proper condition, then we should infer that his sensations were incorrect, because that his mental system was impaired. If it be necessary that the the same mental condition belong to all men, even when the other circumstances are favourable, to cause similar sensations to arise from similar agents, the similarity of organization and operation of the brain in different individuals, is as necessary as a similarity in the organs of sight, touch, taste, smell, or hearing.

The most general inference, as to the magnitude of brain being essentially requisite to the display of great and general talents, is subject to so many exceptions, that it can be allowed but a comparative value as a rule. We have innumerable instances of the highest and brightest talents in persons whose volume of brain would entirely mislead a craniologist in his decisions; and on the contrary, how many persons may not every man call to mind, who, although possessed of fine, high "phrenological" heads, are remarkable for nothing but thorough going stupidity, or for actions of the most trifling character.

In fact, after looking round on the principles which appear to be universally pursued by Nature, in her various kingdoms, we cannot help drawing the inference, that mankind, when perfectly formed, and born free from disease, must be in a very great degree equal, in relation to capacity for instruction. The effects of early impressions, and education, are far more influential than they are generally believed to be. Of those persons who have become peculiarly eminent for certain qualities, how many have been turned to a particular mode of life by the most trifling causes? How few children of the same family, receive precisely the same first impressions? How few persons ever attend sufficiently to their children, to discover the causes which direct them to be fond of one pursuit in preference to another. That one talent becomes developed to a greater extent than the rest, arises from a simple cause, the greater degree of exercise. If a man be ever so perfect in both eyes, and use one to the neglect of the other, the neglected eye will soon become comparatively inferior to the other, although in itself perfectly organized. That some minds seem incapable of certain improvements, no one denies; but we can, with equal certainty, state, that we must look to other sources

than GALL's system, for the cause of this incapacity; for we frequently see twins, who are so much alike as to be with difficulty distinguished from each other, who are entirely different in disposition, and as opposite in their displays of character.

Almost every man forms some opinion relative to his companion at first sight, and this opinion, apparently instinctive and generally correct, is seldom formed from any mark peculiar to the head. In the majority of cases, we form our opinions of men while their heads are covered, and are decided by a glance or two at their face and figure. Now, whatever may be the "*innate*" dispositions, certainly the character of the man is most legible in his face and form, and exposed to common inspection. The muscles of the face, from their habits of action, acquire a figure which is expressive of the emotions to which the mind is most subject, and a correspondence is to be noted between the expression of the countenance, and the general deportment of the man. Thus there are few persons that have ever seen an idiot, who cannot, by a single glance, decide on his condition, from the entire absence of action and expression in the muscles of his face, the dull rolling of his eyes, and the undecided and aimless motions of his body.

In addition to this general fact relative to physiognomy, we have heard a gentleman of high character, who was very much accustomed to study men, state that he had found a very marked projection of the frontal sinuses always present in individuals remarkable for a great disposition to see and collect facts, or who were great observers of every thing. This is a fact which is confirmed by daily experience, as may be seen in the portraits of Baron bon Humboldt, Sir Joseph Banks, Linnæus, Rush, and a variety of others. Yet this peculiarity is situated exactly in a place where the developement of the brain has nothing to do with the external figure of the skull.

We should expect to find that the inferior animals, in which peculiarities of disposition are so very marked, and often restricted to one or two, should present evidence of the correctness of this doctrine, in the organization of their brains. But the distinctive marks which he finds on one carnivorous animal, are common to all the species of the same genus, although each species differs so much from the others. In many instances, animals that are very remarkable for extraordinary

performances, are destitute of what, according to Gall's system, should be the organ of that faculty. Thus the beaver, which is so sagacious and skilful a builder, and whose habits are so often the subject of observation, is possessed, in a very slight degree, of the organ of "*constructiveness*;" while the otter, not at all distinguished for habits of building, has this organ (rather a swelling out of the bone) finely developed.

In very many animals, the external figure of the skull leads directly into error, if we attempt to form any opinion relative to the shape of the brain. In the elephant, the plates of the skull are separated to a very great distance from each other, in order that the external part of the head may be made very convex, to give a more commanding insertion to the muscles which move the trunk. In the sea-turtle, the head of which is very large, no inference can be formed concerning the brain. Its skull is a strong bony case, the much larger part of which is occupied by muscles that move the lower jaw; while the brain occupies a small central cavity, which does not much exceed the size of the end of the thumb. In birds that subsist on the larvæ of insects found in decaying timber, as woodpeckers, there is an apparatus for darting out and retracting a tongue of immense length, which, when retracted, is situated on the upper and back part of the head.

That men who resemble, in their general aspect, some particular animal, also resemble it in natural disposition, is a fact of long standing and familiar observation. This resemblance can seldom or never consist in the possession of similar bumps on the upper part of the head. It is a resemblance in countenance, to the peculiar expression which is proper to the animal, and when it is very perceptible, is an indication of disposition that may be relied on.

The tendency of this doctrine, falsely titled "Phrenology," is such as would shock some of its most ardent votaries, if reflected on; but they are generally too much amused with the immediate consideration of the subject, to look to consequences. These, however, must ensue, and the time will come, when the theory will produce its effect in practice.

If my disposition be determined towards murder, by an organ which moves me thereto, how am I punishable for perpetrating that to which I am driven by necessity? If the predominant dis-

position is "*amativeness*," can the possessor be criminal in leading a debauched life? If his organ of "*combativeness*," hurries him into the midst of frays, is the civil magistrate to fine, imprison, or chastise him? "It is bad to have a misshapen head," says Carbonarius, in our motto, "but he is truly miserable, whom nature has forgotten to finish, and must yet be punished for her neglect." The lovers of GALL, say that the individual should be educated in such a way as to give a predominance to the other organs. But, unfortunately, the organ must be developed before it can be known, and when it is developed, the individual cannot avoid being influenced by it. Thus every vicious propensity finds its refuge in the structure of the brain, according as GALL has developed it, and however much the partisans of the theory deny, the practical tendency of the doctrine will be of this kind. The human mind, instead of being considered as a reflection or emanation of the ETERNAL MIND, which made and animates all things—as only fallen from its original brightness, and not entirely destitute of the excellence derived from its source, is henceforward to be considered as the *quality* of the brain, and corresponding in *quantity*, to the *size* of the cause. It is not enough, that we are unfortunately too prone and easy to be turned to evil by the influence of bad education, bad habit, and evil example, but we are told, that our vicious propensities spring from organs in our brain, which propel us to do evil, and which we insist on we cannot be accountable for. Let the vicious then anxiously anticipate the day when the doctrines of GALL shall be triumphant—when courts shall no longer exist for the punishment of actions merely the work of Nature—when the pulpit shall be silenced by a conviction of the folly of preaching against vices which are the results of uncontrollable and organick impulses—when the "dispositions" which are "innate," are no longer to be restrained by notions of accountability—when "*amativeness*" and "*combativeness*" and "*murderousness*," those darling propensities of "great minds," may reign and revel securely in all parts of the earth.

In relation to the merits of Dr. Gall's anatomical investigations, we have nothing farther to remark, than that they have no connection with his phisiological doctrines, as is to be seen in the report made to the French Insiitute by Cuvier, Pinel, &c.; nor have we thought it necessary to examine each of the

propositions of Gall, separately, as this has been done in various publications, as to render it unnecessary. If there be any force in our argument, as to the general defects of the theory, the particulars need no special refutation.

When a mere literary folly grows fashionable, the extravagance of it may provoke a smile, or we may sigh in pity for the waste of time the pursuit of it causes; should an error, whose mischievous tendency is evident, be started, attention is speedily awakened for its correction and defeat; but a doctrine may be advanced under the imposing sanction of Philosophy, supported by celebrated names, fraught with the most injurious tendencies, capable of producing the most destructive effects on human happiness, or even of shaking the foundations of morality, religion and good government, without exciting suspicion, or causing alarm. Those who are placed in responsible situations, and are watchful, must be willing to bear even reproach for their fidelity in declaring the true character of such doctrines, rather than culpably to suffer them to glide into general acceptation, which might happen if their tendencies were not discussed. Every man impressed with a proper sense of the danger flowing from the introduction of doctrines whose practical results must be prejudicial to the best interests of humanity, should be on the alert to detect their guileful sophistries, expose their ruinous tendencies, point out their absurdities, and employ every instrument of reason to overthrow such doctrines, and whelm them in an abyss of merited scorn, contempt, and ridicule. The modern doctrine of "PHRENOLOGY," is one which deserves and will receive this fate. A candid investigation even of the writings of its promulgators, will be sufficient to prove that it has no foundation in fact, derives no support from analogy, leads to no useful conclusion, but must inevitably be destructive whenever its influence is exerted on society.

ARTICLE III.

MEDICAL JURISPRUDENCE.

Translated from the French.

INFANTICIDE.

Continued from page 125—No. II.

CIRCUMSTANCES may absolve the mother from the accusation of Infanticide, when the new born child has been the victim of an umbilical hemorrhage. If the placenta was inserted in the neck of the uterus, the displacement of it may have caused an hemorrhage no less fatal to the mother than to the child. If the accouchment has taken place where the necessary aid could not be obtained, how could the unhappy mother bestow upon her infant, the first necessary attentions, and make the ligature of the cord? A dreadful hemorrhage may have deprived her of her senses, and almost of life. This terrible accident leaves very manifest traces, and a mother in this state, returns painfully to life, and exhibits, for a long time, the effects of the hemorrhage which has nearly drained her veins. If fainting succeed the accouchment, if, by an unfortunate concurrence of circumstances, the limbs of the infant, agitated by convulsive movements, should break the cord entwined around them, and thereby cause a mortal hemorrhage, could the mother be accused of infanticide? Certainly not, if it be sufficiently demonstrated that this has been the case. It may even be admitted, that a woman recently delivered and suffering strong convulsions, may herself, without knowing it, rupture the umbilical vessels of the infant, either by ipvoluntarily rolling over it or treading on it with her feet, but the probability of this is small. It is very small if it be pretended that the labour having been sudden, and while the mother was standing the infant fell and the cord was broken, and the hemorrhage could not have been prevented by the mother because she was deprived of her senses by syncope. In such a case the mother must have been ignorant of the term of her pregnancy, she must have been surprised by the pains of labour in a situation where no aid could be obtained, and she must be able to prove that this syncope happened immediately after the expulsion of the infant from the uterus.

If an attentive examination of a new born child, shows that

it has died of hemorrhage, although the cord be tied, the mother may be suspected of Infanticide, for an unprincipled woman may have made the ligature after having suffered the child to bleed to death. The Medico-jurist should carefully note all these circumstances. Alberti says that a guilty mother may change the linen of her infant and wash away the blood from the places soiled with it. We should not be deceived by the great quantity of blood which covers the bed of the mother or the cloathes of the infant: it is as likely to have proceeded from the one as the other. Some authors have said that an hemorrhage by the umbilical cord, proves the life of the child, as this is a phenomenon exclusively vital: thus the absence of any umbilical hemorrhage would be a proof that the death has preceded the birth. But a loss of blood, caused by the displacement of the placenta from the neck of the womb, may have caused the death of the child before the close of the labour. Have not vigorous children been born who have lost but little or no blood by the umbilical cord when the ligature has not been made?

Rœderer has noticed a case which it is important to have known. During the labour the placenta may be disengaged and the cord broken; the infant may nevertheless have respired in the passage before its death, and when it has passed the vulva, its death may have superceded the necessity of the ligature of the cord. A physican would be deceived, if, from the inductions drawn from pulmonary docimasia and all the signs of asyphxia, he should pronounce that the infant had lived and had fallen victim to the omission of the ligature of the cord. An attentive examination of the mother of the child, and especially of the dilatation of the lungs, would sufficiently enlighten the Medico-jurist.

Hebenstreit, Haller, Teichmeyer, and Ploucquer, have sufficiently shown that when a new born child has not lost its life by hemorrhage, the arterial system contains but little blood, but that the venous system is surcharged with it. If an umbilical hemorrhage has caused the death of an infant born alive, the arteries, the veins, the auricles, the ventricles, contain no blood; the muscles and the viscera are discoloured, and the skin extremely pale, appearing like wax. To these circumstances must be added experiments to prove that the infant has lived;

and if it be sufficiently proved that it has perished by an umbilical hemorrhage, there remains to be shown, in order to justify the accusation of Infanticide, a criminal intention on the part of the mother. The most minute details should be required, as they may furnish useful inductions: it is of great importance to dissect and examine the state of the large vessels of the infant, and it is no less important to compare the facts alleged by the mother, with the observations then made. Thus the criminal intention of the mother is proved in case of Infanticide by omission. 1st, If the child has been placed in a temperature too disproportioned to that of the uterus; 2d, If it has too long been deprived of suitable aliment; 3d, If it has been left too long in a position which prevents the free access of the air to the mouth and nose; 4th, If the umbilical cord has not been cut and tied. It requires a concurrence of circumstances extremely rare and difficult to prove, to show on the part of the mother, an impossibility to bestow on her infant the first attentions which it requires.

II. *Infanticide by commission.*—The premeditated murder of an infant born alive by violent means, is called Infanticide by commission. The investigations for the discovery of this crime, are made upon the supposition that there is proof that the child was born alive. This proof being obtained, it must next be determined whether the violence which caused the death was voluntary or involuntary, the effect of the labour or of accident.

The knowledge of some experiments made at the Lying-in Hospital, may furnish us some useful inductions; they are detailed in an excellent dissertation upon Infanticide by Lecieux, who has enriched it with the opinions and researches of Professor Chaussier on this branch of Medical Jurisprudence.

1st. Fifteen infants who had died after their birth, but in whom there was no alteration in the bones of the cranium, were selected, and after having been raised up by the feet so that the head was at the height of about eighteen inches, were suffered to fall perpendicularly upon a hard floor, and by anatomical examination it was found that in twelve of them there was a longitudinal or angular fracture of one of the parietal bones and sometimes of both.

2d. In the same manner fifteen infants were suffered to fall from a height of three feet, and on dissection there was found,

in twelve cases, a fracture of the parietal bones, in some extending to the os frontis. When suffered to fall from a greater height, the membranous commissures of the cranium were relaxed and even broken in some places; frequently the form of the brain was changed, and in some cases there was found under the meninges or in the thick part of the meninges, an ecchymosis, an extravasation of blood produced by the rupture of vessels, and it was only in infants whose bones were very soft and flexible that no fracture was found.

3d. After having placed on a table the head of a child that had died soon after its birth, it was pressed in different places very strongly by the two thumbs on different parts of the surface; and in fifteen experiments of this kind, seven caused longitudinal fractures of greater or less extent in one or other of the parietals. In others there was only perceived a depression or sinking of the bones. In the greatest number the head was deformed or flattened, and the membraneous commissures exhibited a sensible relaxation.

4th. Finally, the head supported on a table was struck strongly and in different places with a short round stick. This experiment always caused a deformity or flattening of the head, multiplied fractures, with separation of splinters, relaxation, in some places, rupture of the sutures, and finally extravasation of blood.

Causes of Infanticide by Commission.

1st. Wounds. A. *Wounds of the head.*—These wounds may be enormous contusions with fracture of the bones and extravasation of blood. The physician will examine attentively the ecchymoses, the lesion of the bones, if there be any, the extravasation; and will endeavour to decide whether the wound was necessarily mortal. A painful labour may cause ecchymoses, bruises of the flesh, a tumour on the sinciput, but not a large contused wound complicated with fracture of the bones and extravasation of blood on the cranium. A barbarous hand may have dashed the child against a hard body, or may have struck it powerfully on the cranium with some murderous instrument.

A widow, about 30 years of age, says Mr. Fodère, had succeeded in concealing her pregnancy. On the day in which she was seized with labour pains, her neighbours, eight in number,

were spending the evening with her. The widow exceedingly fatigued by their presence, at first complained of violent cholick pains and desired a close stool, which was brought her, and on which she sat nearly a quarter of an hour. I pass over the different stratagems she employed to deceive the women around her. A midwife passing near the house, heard of the case and suspected an acouchment. The widow persisted in denying her pregnancy, but the after-birth found in the stool, and the infant found dexterously concealed in the pallet, revealed the truth. This child born dead at about seven months, but supposed to have been capable of living, had its cranium crushed between the thighs of the mother when coming out of the womb.

B. *Acupuncture.*—A needle or any very small sharp instrument thrust into one of the great cavities of the body, for the purpose of lacerating the splanchnick viscera, is the agent of the mode of Infanticide, which I denominate Acupuncture. In order to penetrate the brain, the instrument may have been thrust up the nostrils, through the temples, the ears, or the fontanelles. Guy Patin mentions a midwife who assassinated infants when in the birth at the time when the head was first presented out of the womb. Alberti, Brendel and Belloc cite horrible examples of this crime. Other monsters plunge a needle into the left thoracick region and pierce the heart. In some cases the spinal marrow has been wounded by the introduction of a needle between the cervical vertebrae, or the abdominal viscera have been mortally wounded by thrusting a needle up the rectum. If the Medico-jurist should find a puncture upon the cranium, he ought to shave the head, carefully probe the wound, lay open the encephalick organs and examine carefully what lesion they have suffered. The same course should be pursued when the puncture is in the thoracick, iliack or abdominal region. If there should be no apparent wound and yet upon opening the splanchinick cavities, (absolutely necessary in all cases of accusation of Infanticide,) a considerable wound of any of the viscera should be discovered, it would be necessary to dissect this wound attentively, and its course should be traced to the point where the instrument entered. Thus the crime must infallibly be discovered in spite of the refined wickedness with which it was committed.

C. *Detruncation; large wounds and fractures of the members.*—These or the complete section of the members with a sharp instrument, prove Infanticide when it is shown that the infant was born alive. Then the action of any cutting instrument becomes a circumstance of accusation against the mother, and a case in which she is rarely able to justify herself.

E. *Luxation of the cervical vertebrae.*—Many infants born alive have been killed by the distortion of the cervical vertebræ. If the head can describe a circle or nearly a circle, the luxation is complete and the ligaments are broken. These displacements are always followed by a great contusion or a rupture of the spinal marrow, when they have been caused during life, without extravasation in the neck, infiltrations in the cellular substance and the muscles, rupture of the muscular fibres and the ligaments, and it is very rare, if not impossible, for them to be disguised by a criminal artifice. The indications given by the ecchymosis and the sanguineous infiltrations, will show whether the luxation was made on a corpse or a living child; the sanguineous infiltrations do not take place in the former case. Besides, how is it possible to produce these luxations in a dead born child? To these different circumstances and to the different moral presumptions, must be added the experiments of pulmonary docimasia, in order to fortify one kind of proofs by the other.

F. *Torrefaction.*—Who could believe that a mother would have the barbarity to cause her infant to perish in the flames, thereby to obliterate more effectually all the vestiges of its existence? If the greatest part of the body of the unfortunate child has been consumed, there is no direct method of proving that it was born alive; but if it be possible to make the requisite experiments on the lungs, if the developement of a great number of phlyctenæ, (a phenomenon exclusively vital,) be perceived by the Medico-jurist, the Infanticide is manifest.

2d. *Asphyxia.* First Species. *By privation of oxygen.*—A. *Suffocation in a coffin.*—A child interred immediately after its birth, perishes by privation of oxygen; but it must necessarily have breathed, and the pulmonary docimasia proves the crime. If the mother has killed the infant in the birth before the first inspiration, the lungs will furnish no induction; nevertheless it does not necessarily follow that the child was

born dead. A disordered state of the cranium which a painful labour could not have caused, or marks of strangulation, will direct the Medico-jurist in the way of the truth. A new born child shut up in a coffin, will perish immediately if its prison be small; the oxygen of the air diminishes constantly until the air being no longer respirable the child expires.

B. *Obliteration of the cavities of the mouth and nose by some foreign body.*—New born children may be stifled in a bundle of straw, of chaff, or a mass of clay. This species of death differs from the foregoing and is proved by the existence of a part of the foreign body in the mouth and nose. Submersion is a common method of Infanticide.

C. *Asphyxia by mechanical obliteration of the windpipe.*—Criminal mothers have suffocated their infants under a thick coverlet or bed; some have committed this murder by a strong pressure of the trachea and the thorax, or by compression of the epiglottis with the finger at the top of the throat. The rupture of the bridle of the tongue, marks on the neck, all the symptoms of cerebal congestion, joined to a demonstration of a complete respiration, cause very unfavourable impressions respecting the accused person. Perhaps this would be the proper place to speak of the different methods of strangulation with the finger; but I defer the consideration of them until the examination of the fœtus, and then I shall examine and compare them with strangulation by the cord or the pressure of the neck of the womb.

Second Genus. *Asphyxia by deleterious gases.* A. *Sulphurous acid gas.*—Experiments made by M. Hallé with sulphurous acid gas, have shown that the hearts of animals killed by the respiration of this gas, were small, contracted, hard, and of a bright red colour. The livid appearance of the lungs, according to Alberti, has furnished the sign by which it was discovered that a woman had stifled her child with the vapour of burning sulphur. These signs however do not seem sufficiently conclusive.

B. *Gas from privies.*—This is one of the most common modes of Infanticide. An infant plunged into a privy, perishes by suffocation and the deleterious impression made by the gas emanating from the stercoral matter. If it be withdrawn before putrefaction has made much progress, the pulmonary docimasy, still practicable, will serve to decide whether it was born dead or living.

It would be tiresome to indicate the principal methods by which a wicked mother may destroy the life of her infant, and the necessity of omitting none of the circumstances which may serve to unmask the crime, has alone enabled me to overcome the disgust which the display of so many horrors inspires. If by a concourse of unhappy circumstances, the truth is sometimes covered with an impenetrable veil, if formerly the obscurity and want of precision in a proof, rendered useless the most evident inductions and the strongest presumptions, an able Medico-jurist may now, in almost all cases, enlightened by an attentive examination of the mother and her child, triumph over the arts of an abandoned woman and detect the crime which she expected to commit with impunity.

III. *Examination of some causes of the death of infants born alive, which may exclude the accusation of Infanticide.*—Fallacious appearances may often cause a mother to be suspected of the murder of her infant. It is important not to suffer a crime to be committed with impunity, and it is of equal importance to distinguish an unfortunate accident from a guilty manœuvre, and to display innocence amidst the circumstances which cause suspicion. How can we venture to pronounce that Infanticide has been committed, without the strongest evidence? Without the most minute examinations, how can we distinguish an accidental event from a premeditated murder? Whenever premeditated violence has not been fully proved, a Medico-jurist setting aside probabilities, which are not proofs, should decide in favour of the accused. He should carefully observe the vestiges of a long and painful labour; he should examine the symptoms, the traces of the accident which the mother in her justification, alleges as the cause of the death of her child; he should compare the statements of her assistants with the facts before his eyes, and should always recollect that the honour and life of the accused are involved in his decision. It may have been out of the power of a mother to stop an hemorrhage which may have caused the death of a new born child. If the separation of the placenta has caused a considerable loss of blood, she may, after the birth, be reduced to a state of apparent death, and thereby unable to assist her infant. It is natural to suppose that a young girl lying-in for the first time, unexpectedly, in a situation remote from the necessary

assistance, may fall into a syncope, and thereby be prevented from tying the broken umbilical cord of her infant, an operation of the necessity of which she may be perfectly ignorant. An infant exhausted by *intra-uterine* hemorrhage, may be born in such a state of weakness that the mother may suppose the ligature of the cord unnecessary. This internal hemorrhage may be the cause of the death, but these circumstances should be proved. It should be fully proved, that the mother, uncertain as to the term of her pregnancy, was suddenly seized by the pains of labour in a place where the necessary aid could not be obtained, and this combination of circumstances, exceedingly rare, scarcely justifies her for having suffered her infant to perish miserably.

The winding of the umbilical cord around the neck of the infant may be an accidental cause of its death, not so much by its pressure on the organs of respiration, as by the obliteration of the umbilical vessels. In this case, the infant is born dead, and the experiments upon the lungs demonstrate that they have not been inflated by atmospherick air. The signs of respiration furnish the proofs whether the death has been accidental or caused by external violence; nevertheless it does not appear that they are absolutely conclusive. In fact, as Mahon has observed, if the child has been strangled by the cord, during the labour, when the fœtus is agitated in the womb and placed in different positions, is it possible that the impression of the cord should have been such as to cause a mortal apoplexy, accompanied by all the signs of suffocation, and that afterwards the child, released from the womb, may have respired before its death? All possible cases should be known to the Medico-jurist, but he should not admit any without evidence, or, at least, very strong probability: and the culpable efforts of a physician to excuse or disguise a crime, are no less to be blamed than the carelessness of him who decides without sufficient examination.

During labour, particularly a painful labour, the head of the child is subject to different lesions, which we ought to be able to distinguish from external and premeditated violence. Thus it is often the seat, in many parts of its surface, of ecchymoses, of tumours, of bruises of the integuments; it may be much lengthened and flattened: contusions from similar causes some-

times are found on the trunk and members. It is admitted that violent contractions of the uterus may break the bones of the extremities, and displace those of the head. Finally, we may suppose that the child, ejected by a sudden contraction of the womb, has fallen upon very hard ground, upon a pavement, or on stones, &c. this shock may have caused the different lesions on its body. But are these lesions never sufficiently great to prove mortal? Is it possible to confound them, without consideration, or rather without a criminal intention, with those spoken of above? I have seen an unfortunate girl delivered while standing at the door of a hospital where she was taking refuge: at the moment when she felt the child in the passage, she bent her knees in such a manner that its fall was very light. These labours, so sudden and easy, are rare, and when they do occur, the mother has sufficient warning to enable her to take the necessary precautions. Besides, is the route by which the child has to come, so perfectly free and open, (supposing the greatest dilatation of the sexual parts,) that it will meet with no difficulty or obstruction? May not the umbilical cord, before breaking, support the infant during the moment necessary for the mother to place herself in a horizontal position? If we must, at any rate, admit the rupture of the cord during a sudden accouchment, let us, at least, be certain that it is a rupture and not a section by a cutting instrument.

A very interesting statement by M. Fodéré, teaches us with what care and attention it is necessary to examine the lesions which may be exhibited by the body of a new born child. Maria Granger declared that she had had a fall nine days previous to her lying-in, and before the end of her pregnancy; that she was delivered, alone, in her bed, an hour after going to it, and four hours after the first pain. She pretended that she had not heard her child cry at the moment of its birth; that she did not know how the umbilical cord had been broken, nor what efforts she herself had been able to make towards delivering the child. She was seen after the accouchment with her hands bloody: the delivery had taken place about four hours previous. It was her first delivery, and she had not been certain of her pregnancy, and her surgeon had agreed with her in opinion. No trace of blood was perceived by the magistrate, in any place nor upon any of the furniture of the

chamber where she lay and which she had not yet left. The report of the persons who examined her, testified: "That they had found the body of the child sound and uncorrupted; that it appeared to them to have been at its full term; that the umbilical cord had neither been cut nor tied, but broken off about an inch and a half from the belly; that there was an ecchymosis or extravasation of blood under the skin, as well upon the head as upon the neck and breast, and principally on the left side; that they observed *twenty-four or twenty-five wounds or bruises*, of the length of several lines, the largest not exceeding eighteen lines, some of which were of a circular form, others straight, none of them more than a line in breadth, all situated on different parts of the face except six on the neck and upper part of the breast: *they therefore presumed that the head of this infant had been struck against some extraneous and hard body, of which the impressions were unequal.* That having examined the mouth, they found the under jaw divided into two parts, and fractured at its symphise, *which separation might have been caused by efforts made to hinder the child's crying, or to stifle it;* the effect of which had been so powerful, that all the fleshy parts, for the space of an inch and a half, of the anterior part of the left side, were detached, and that they found it naked and uncovered. That they perceived above the left ear, a depression or hollow, which was not on the right side, and was not common; that they determined upon opening the head, and found the left parietal pressed down into the part below it; that on opening the cranium, much liquid blood had flowed, which could not have happened had the child died before its birth, and if it had not been contused, a quantity of extravasated blood having been found at the base of the cranium; that for further assurance whether the child had been alive when coming into the world, they opened the breast, *upon inspection of which they were convinced that the lungs had been inflated with external air, which proved that it was alive when coming from the uterus.* The examiners therefore decided that Infanticide had been committed, and Maria Granger was condemned to die. M. Fodéré understanding her situation at the time of delivery, endeavoured to establish in his memoir of consultation, that the twenty-four or twenty-five small lesions called by the authors of the report, wounds or bruises, had none of the appear-

ances of a blow or shock, and that they rather exhibited proof of the manner in which the girl was delivered, and the means she had used. That the division of the symphisis of the under jaw only proved the efforts which the accused must have made to deliver herself, by all possible means, of a first child; that the depression of the parietal and that above the left ear, were effects sufficiently frequent in accouchments; that the fluid blood at the base of the cranium, was found in all infants whose heads remained long in the passage, and who had perished in this painful function; and besides, that the cerebral ventricles of new born children, usually contain much reddish serous matter, and that there is much blood in the brain: therefore it was absurd to infer that the infant had been born alive; but that, as it had not lost one drop of blood, it was a proof that the infant must have died in the birth, if not previous.

These last assertions of M. Fodéré, taken in their most rigourous sense, are not, perhaps, correct, but they are generally true, and his memoir demonstrated the innocence of the accused: she was acquitted. Such triumphs over ignorance and hasty judgments, do honour to the physician who obtains them, and to the science which enables him to do so.

I have spoken elsewhere of the different modes of Infanticide by omission, in cases where the mother should not strictly be considered as culpable. A very extraordinary cause of death is the untimely closing of the foramen ovale. Laborie gives us an example of this. There are also many causes of the death of an infant born alive which may exclude the accousation of Infanticide: these causes should be carefully investigated and not confounded with wilfully criminal acts. If it be important to separate an unfortunate accident from the suspicious circumstances which change its character in the eyes of prejudiced persons, it is no less essential to avoid a violation and distortion of truth for the protection of crime and the indulgence of a censurable vanity. This is a reproach which many estimable physicians have deserved. They have endeavoured to combat and refute reports often very exact; and the sword of justice, suspended by these contradictory opinions, has been prevented from reaching the guilty mother. When evidence speaks, a Medico-jurist should let it have its due weight.

IV. *Examination of the new born child.*—When the body of

a new born child is found, an officer of police is called; he repairs to the place, makes a report of all the circumstances he can collect, and a physician appointed by the tribunals, is charged with the examination of the corpse and the discovery of the manner of its death. His report is of the greatest importance; it is not necessary that it should be swelled by useless details and tiresome circumstances; it should be confined to essential facts. There are circumstances foreign in themselves to the examination of the child, but of which the knowledge may suggest useful instructions, and consequently which it is important to have known. Thus, the death of an infant ascertained, we must endeavour to learn the circumstances which have preceded it; we must be informed whether the labour was long, laborious, complicated, or followed by hemorrhage, syncope, or convulsions; if it be the first pregnancy of the mother; if she has lain in unexpectedly in a place distant from all aid; in what state she was before, during, and after the birth; if she has been delivered after sudden pains, which have increased until the moment of the expulsion of the fœtus from the womb; her age; the state of the genital organs; at what period the deliverance has taken place, and how much blood or other fluid has followed the expulsion of the after-birth; what was the position of the mother at the moment of the passage of the child through the vagina, and in what place and what temperature it has come into the world; whether the infant has cried after its birth; if it have taken any aliment, or discharged its meconium or urine; how the corpse was found, whether it were upon a hard uneven ground or on a smooth spot; if it were surrounded with blood; if the umbilical cord were tied and how; if it made any movements during and after its birth; if its lungs have had sufficient inflation; how long the body has been exposed, and what impression it may have received from temperature; whether it has simply been exposed, or concealed, or thrown from some place more or less elevated, or if any pains have been taken to preserve it, and what they were. None of these circumstances are indifferent, none should be neglected; there are none of them but may throw some light on the subject. To prove an Infanticide, we should not confine ourselves to ordinary precautions, but should avail ourselves of every particular: it is here that judgment and sagacity are most valuable qualities.

1st. *Examination of the exterior condition of the fœtus.* A. *Of its maturity.*—By the word maturity I mean the state of an infant at its full term and well formed. Let us see by what signs it may be known. *Length of the fœtus.*—At the Lying-in Hospital an instrument called a mecrometer is made use of for measuring the body of the fœtus; it is thus described by M. Lecieux: it is composed of a wooden rule or square, of one metre in length, divided on opposite sides into decimetres, centimetres, and millimetres. A long thin piece or blade of copper which is fastened at a right angle at one extremity, forms a fixed point, and a slide of the same metal and the same form, moves upon the rule, and can at pleasure be removed to a greater or less distance from the point, and can be fixed in its place by means of a screw; gives the length of the body measured, and its exact division into centimetres and millimetres. The mean length of the body of a new born child at its full time and perfect, is 488 millimetres, (18 inches,) and the two extremes 440 millimetres, (16 inches,) and 596 or even 650 millimetres, (22 or 23 inches.) If the infant be extended on the table, and exactly measured from head to foot, it will be found that the middle of the body, (if it be its full term,) is exactly at the navel, and will be above this point in proportion as the infant is farther removed from the ordinary period of pregnancy. Thus the middle of the body corresponds, according to its age, to different points of the abdomen.

Weight.—Mauriceau estimates the weight of an infant at its term and well formed, at 11 or 12 lbs.; Augier, at 7 or 8, at most, 10; according to Rœderer, the weight of a premature fœtus is 1 pound and a half less than that of one born at the ordinary period. The mean of the different numbers given by comparative experiments on the weight of new born children, is 6 pounds and a quarter. Many infants fall short of this weight, but more exceed it. The extreme weights are from one and a half or two pounds to 13 or even 15 pounds. I do not believe that a fœtus can weigh from 20 to 25 pounds.

Volume.—This depends on a variety of circumstances, to which careful attention should be paid, viz. the constitution of the parents; (the fruits of precocious unions are extremely feeble;) the health of the mother, her age, her passions, her manner of living, the time of gestation, the climate, and even

the season, and also to the sex, if it be true, as Hippocrates says, that girls are, at their birth, smaller than boys. The volume of a new born child can therefore seldom furnish any useful inductions, and it differs not only among women at the same period of gestation, but also in the different pregnancies of the same woman, so numerous are the causes by which it is influenced.

Developement of the internal and external organs.—This is generally in proportion to the age of the fœtus. Professor Chaussier, to whom we are indebted for so many useful observations and ingenious experiments upon the fœtus, recommends the greatest care in the examination of the form and position of the different parts of the body. The teeth rarely present any appearance of ossification before the fourth month of pregnancy. At six months the infant is presumed to be capable of living, the skin is purple, the pupil commonly covered by a membrane, the eyelids closed, (adhering,) the hair just appearing, of a silvery colour, the fontanelles very large, the cranium considerably developed and soft, the nails are formed of a kind of skinny scale. At seven months the probability of life is stronger and the developement of the fœtus more perfect; the eyelids are now opened, the pupil is no longer covered, the nails have more consistence, the hair of a darker tint. The skin now of a lighter colour, secretes, by innumerable mucous follicles, a whitish, unctuous, greasy substance. At eight months the probability of life is still greater; the cutaneous covering is thicker, very fine small hairs pierce the integuments which are more firm; frequently the testicles have passed or are about to pass the abdominal rings; the nearer the period of accouchment, the less is the redness of the skin. At nine months the child is at the highest period of maturity. I pass rapidly over the details given in another place with much talent, and confine myself to the indication of those that may be useful to the Medico-jurist.

B. *Conformation of the fœtus.*—We must examine whether the infant be well or ill formed; and in the latter case, specify the existing original deformities, and note how far they may oppose the preservation of life. Rose, whose excellent manual of Antopsie Cadaverique has been given us by M. Marc, says, that we ought to point out even the smallest external irregularity.

C. *Putrefaction.* When this is far advanced, the Medico-jurist cannot hope for any satisfactory result from the examination of the child; nevertheless, whatever may be its degree, we may examine the fractures—we must see whether they are confined to the abdomen or extended to all the tissues, and whether the epidermis is easily detached from the integuments. Putrefaction may produce changes of which it is essential to be aware: thus it may give to the lungs of an infant who has never respired, the property of floating. Few of the organs resist putrid decomposition as long as the lungs, and when all the body is destroyed, they may frequently be subjected to hydrostatick experiments. M. Marc assures us that putrefaction does not prevent the scalpel from producing the peculiar sound, the crepitation, which is perceived upon cutting those lungs which have respired, and that this sound is never perceived in the lungs of infants born dead, even when putrid decomposition causes them to float. By pressing between the fingers the substances developed by putrefaction, the parts of the lungs thus pressed, which had previously floated, will sink to the bottom in the case of a child born dead, whilst in a contrary case they will continue to float. Putrefaction, by breaking the blood-vessels, becomes a cause of extravasations, which can scarcely be confounded with those caused by a wound made on a living infant. The report is not complete unless it contains an indication of the degree of temperature and the external circumstances which might quicken or retard the putrefaction.

D. *Rigidity of the corpse.*—This does not furnish very certain inductions: it is very probable that the body of a new born child, if found to be very supple, indicates a death not very recent, and which may have happened in the womb; whilst its great rigidity would indicate that it had perished during or soon after the birth. In winter the stiffness of the corpse is much influenced by the temperature; it is especially, very great if the child has died of cold, or by an hemorrhage, or convulsions. Opposite circumstances produce contrary effects.

E. *Colour of the integuments.*—In infants who have died of hemorrhage or of hunger, the colour is very pale, in the former case they exhibit a wax-like appearance. We must examine how far it differs from its natural state: the further an infant is from the natural period of its birth, the deeper is its colour

—It may be covered with blotches. Rœderer and Mahon say that a livid appearance of the face is not always observed in fœtuses which have lost their lives by strangulation, either by the umbilical cord or the neck of the womb.

F. *Spots, bruises, ecchymoses.*—The examination of these is of the greatest importance; the Medico-jurist ought to make an exact description of them, and he should distinguish cadaverous phenomena from such as may happen during life. The ecchymoses, phenomena exclusively vital, pass from the lightest colour to a reddish blue, and to blackish and yellowish, if there has been no commencement of absorption. A blow upon a corpse does not produce an ecchymosis, because the capillaries contain no blood; but a body lying long in any position whatever, produces always an extensive sanguineous infiltration: a phenomenon very common in the amphitheatre; the integuments of the back are blueish sometimes marbled, for the corpses are generally placed in a supine state.

New born children exhibit almost always, on coming into the world, an œdematous tumour with or without sanguineous infiltration on the centre of the vertex; but if they die in the womb, this phenomenon never appears. The more tedious and painful the labour, the more considerable this lesion of the integuments of the cranium may be. But if there should be a deep penetrating contusion, with sanguineous infiltration and at a distance from the vertex; if it correspond with a separation of the pericranium on the dura mater, or a lesion of the brain, how can it be attributed to the labour however painful it may have been? It is important to dissect the ecchymoses, the contusions, in order to be certain whether there be any lesion of the internal organs corresponding with them. The facts observed should always be compared with each other, and with the particulars which have been obtained respecting the accouchment. The fontanelles must be examined for the purpose of knowing whether they are uninjured, whether they have not been pierced by a sharp or fine instrument, and finally whether they be convex or depressed.

The bruises or marks of any kind upon the neck, require particular examination; it is upon the nape that many Infanticides are committed. If we find in this region a penetrating wound, it must be followed throughout its extent, and the

spinal canal opened; if there be traces of luxation, the muscles must be dissected and examined to see whether any of their fibres are broken—whether there are any sanguineous infiltrations and ruptures of the ligaments. The excoriation of the epidermis of the integuments of the neck, is a sign, according to Ploucquet, that the compression should not be attributed to the surface of the neck of the womb, the vagina, or the umbilical cord, but to external violence, such as the constriction made by a cord or the nails. Rose observes very judiciously, that a variety of circumstances may cause an excoriation of the skin of an infant strangled during the birth, and without any external violence. He asks if there be no cause which in the womb may render unequal the impressions discovered upon an infant strangled in the birth; and if, for example, the hand of the child, placed beside the neck when it undergoes the mortal constriction of the cervix uteri, may not produce the effect in question. Ploucquet has stated, perhaps too lightly, that the cervix uteri, the vagina, and the umbilical cord produce only an uniform extravasation on all parts, whilst that produced by external violence, is always unequal, not only in its form but also in depth. Is it not possible, asks M. Marc, to produce an uniform compression by using a very smooth cord? The examination of the ecchymoses, wounds and contusions which may exist upon the breast, the spinal region, the abdomen and the limbs, should not be neglected: the report of the Medico-jurist ought to contain their number and an exact description of them.

G. *Exterior conformation of the breast.*—When an infant is born alive, the breast is raised, round and full, more extended in all points than when it is born dead, in which case it is very narrow and flat. It is said that there are some Medico-jurists so expert that, by the view of the thorax alone, they can tell whether an infant has respired or not. These signs, taken from the external conformation of the breast, cannot be very conclusive. If there have been but few inspirations and expirations, and those feeble, can they have changed materially the figure of the thorax? Nevertheless, it is well to examine whether this cavity is close and compressed or arched and enlarged in its lateral diameter.

H. *Examination of the internal state of the fœtus.*—Some au-

thors recommend an examination of the interior of the head, in finishing the examination; others terminate their enquiries by examination of the lungs. It is of little consequence where we finish, provided sufficient knowledge is obtained.

We must commence with the mouth, and observe in the first place whether it be open or shut, and whether the tongue be out of the mouth or not. This state of the tongue is considered as an indication that the child has lived: it merits some confidence. In order to examine well the interior of the cavity of the mouth, it is necessary to divide, with precaution, the symphisis of the inferior maxillary bone, and to make a large division of the commissures of the lips and cheeks; it is then easy to see whether the mouth contains a bloody froth or any foreign substance, such as straw, chaff, dust, &c. and whether there be any traces of external violence upon the epiglottis and the parts which form the fauces. Sometimes there is found in the trachea arteria some foreign substance—dirty water or coagulated blood; the cause of death is then known: pure water is a proof of submersion while the child was alive, as in the preceding case; but if it be not found, it does not follow that the child was thrown into the water after death. Much frothy blood in the mouth is a strong indication of violent and meditated suffocation. It is not so with mucus which exists in the windpipes of a great number of children, especially those who have died of epilepsy, and if there be no other suspicious circumstances but this, the probability of Infanticide cannot be maintained.

In order to examine well the abdominal and thoracick viscera, it is necessary to raise the anterior and lateral walls by a large oval incision made carefully so as to divide successively the costal cartilages and the posterior part of the large muscles of the abdomen. Lateral incisions in the sides, methodically made, afford every possible facility for breaking the ribs and leaving the lungs perfectly uncovered. The abdomen generally contains a serous matter which is not bloody, the quantity of which is very variable. Some physicians suppose that a bloody lymph may be perspired through the arterial, venous, or capillary vessels during a painful labour; and Rœderer has found this fluid in a fœtus born at maturity, whose head had been strongly compressed in the passage. But it

does not appear to me to be sufficiently proved that there was perfect relation of the pretended cause to the effect. If coagulated blood and a wound of any important viscera be found, the cause of death is evident. Some Medico-jurists admit, (but in my opinion too lightly,) that the gases disengaged by putrefaction, may break some of the bloodvessels, and in this manner cause the extravasation; but the bloodvessels do not contain blood after death, especially at the commencement of putrefaction; I doubt even whether the veins contain much at that period: it is therefore quite a gratuitous supposition that these gases cause such an effect; and this extravasated blood, if it could be thus extravasated, (which I do not believe,) would never have the same characteristicks as arterial blood extravasated during life. It is essential to know certainly whether the umbilical vessels are open or shut, empty or full of blood; the first is the ordinary state—the blood flows back entirely into the vena porta: if the veins and auricles are entirely clear of blood, as well as the arteries and ventricles, then the death by hemorrhage is very probable. What malformations the viscera may present, will readily be perceived. The stomach of new born children commonly contains a thick substance of a greyish white colour, more or less abundant; sometimes a little of the liquor amnii, which has not been used for the nourishment of the infant, but may have been forced into the digestive canal by uterine contractions. Mahon even admits that the same cause may force a small quantity of this liquor into the arterial system, which is still more improbable. The substances contained in the digestive organs, must be carefully examined; it must be seen whether the meconium has been discharged, and whether the bladder is full or empty: this is generally full. Convulsions have sometimes entirely expelled the urine, and infants born alive, have sometimes died before the evacuation of this fluid, consequently the bladder is full. The degree of elevation of the diaphragm ought to be considered; if there be a wound made by a sharp instrument, it should be traced in the abdomen through the viscera, and the ravages it may have produced, should be noted. It is not superfluous to examine the progress of putrefaction.

Upon inspecting the breast, the thoracick viscera must be

examined to ascertain whether they are diseased or not. All that concerns pulmonary docimasy, has been stated with much talent and care by M. Marc, in another article of this work, to which my readers are referred.* I shall confine myself to the citation of some conclusions which have a direct relation to my subject. These conclusions are, that of all the pulmonary proofs the hydrostatick is to be preferred; but neither that nor any other can be sufficient to determine, with certainty, the smallest degree of respiration, and that in this case it can only be applicable in an exculpatory point of view. In order to prove the respiration and consequently life after the birth, the pulmonary proofs ought to coincide with the following circumstances: the infant should exhibit all the signs of maturity, and putrefaction should not have gone so far as to exclude the necessary examinations or even render them uncertain; there should be no malformation to which the death could be attributed; the state of the head, both internally and externally, should be such as not to indicate the cause of the death; there should be proof, from all the indications given by the state of the lungs, the thorax, the diaphragm, the abdominal viscera, &c. that the respiration has been complete; the report should show that there has been no sufflation; the conclusions drawn from what has passed during the accouchment, should exclude the supposition that the child could have respired before birth; and finally, there should be found upon the fœtus such traces as indicate that it has been a victim to criminal efforts.

The bony covering of the cranium should be opened with a small saw, and not with a hammer, when it is taken off for examination. The encephalick organs being laid open, we must examine whether there be any malformation or extravasation of blood, and what is the nature and seat of such extravasation; whether there be any wound of the brain; whether the meninges are inflamed or torn at any point, which may correspond with any external wound whatever; whether there be any fracture either of the top or base of the cranium; whether there be any malformation of these bones, and whether any extravasated blood or serous matter exist in the cerebral ventricles.

[* The article Pulmonary Docimasy will appear in No. IV.]

Finally, the vertebral column must be examined, not only externally but internally. A very sharp instrument may have penetrated between the cervical vertebræ and wounded the spinal marrow; this marrow may have been mortally wounded by a sudden distortion of the neck with or without luxation, and signs which are almost infallible, will show whether the displacement has been caused before or after the death of the infant. These precepts, carefully attended to, will doubtless give the Medico-jurist a knowledge of the truth, or, at least, they will enable him to put at rest his conscience.

3d. *Examination of the after-birth and of the umbilical cord.*—Many useful inductions may be drawn from the inspection of the after-birth and of the umbilical cord: thus it must be known whether the cord has been tied or not; whether it has been cut or broken; whether it contains coagulated blood, or is entirely empty; whether it be too long or too short; at what point it has been broken or cut; whether there be any signs of hemorrhage by the cord; whether it be thick or thin, still fresh or shrivelled; if it has been cut before it was tied, or tied before it was cut. Mauriceau and Smellie have supposed that a knot might be formed in the womb: Baudelocque denies that such a knot could affect the life; but Mahon supposes that it may so happen that the fœtus removing itself from the placenta to pass from the womb, would of itself intercept the communication on which its existence depends.

It is requisite to know the state of the after-birth: if this be injured by any malady whatever, the child was certainly born dead, and this remark is not indifferent when connected with other probabilities. It is easy to find upon the placenta signs of its separation when it has caused a mortal hemorrhage.

Many of these minute details appear very trifling; but a case may happen in which the most indifferent of them may be an important indication, and no circumstance should be neglected since an erroneous decision may absolve a criminal or send to the scaffold an innocent person.

V. *Examination of the mother.*—The investigation of the signs of a recent accouchment; the examination of many circumstances which, when sufficiently proved, may exclude the accusation of Infanticide, such as ignorance of the term of

pregnancy, suddenness of the accouchment, and impossibility on the part of the mother to bestow on her infant the first necessary attentions, and some other circumstances not in themselves connected with the state of the mother, may furnish useful inductions and add to the proofs in favour of or against the Infanticide.

1st. *Signs of a recent accouchment.*—Of these the following are the principal: a sanguineous or milky fluid from the breast; clots of blood or bloody mucus from the genital organs, which are much tumefied; the abdominal integuments wrinkled and flaccid; a tumour formed by the developement of the matrix, very apparent and very sensitive; great dilatation of the vagina; great dilatation of the neck of the uterus, which is flattened, wide, and sometimes ruptured laterally. A concurrence of these signs, leaves no doubt, especially when they are strengthened by the discovery of vestiges of the placenta or the body of the infant. Further indications may also be discovered respecting the situation of the accused previous to the sickness, which may be very useful in strengthening the diagnostick: thus, for instance, it may be known, that for some time previous the catamenia had ceased; that the belly, after having been for a long time tumefied, had suddenly been reduced, and that she had experienced violent cholick pains, &c. The more distant the time of the accouchment, the more difficult it becomes to perceive the signs of it. The dimensions, the degree of maturity, and the state of the fœtus, must be compared with the state of the mother.

2d. *Of some circumstances which may absolve the mother from the accusation of Infanticide.* A. *Ignorance of the reality of pregnancy.*—I have before stated what an extraordinary concurrence of circumstances are necessary to prove this ignorance, which are admissible only in the case of an innocent young girl; but not in the case of one who has previously been a mother. It is different as to the period of pregnancy: women who have had many children, are frequently deceived in this particular.

B. *Extreme suddenness of the labour.*—Lafosse saw in a hospital a woman who, feeling the first pains of labour, imagined that they arose from a very different cause, and rose to go to stool. Half of the infant was immediately born, but happily

there was sufficient time to receive it and prevent its fall. This fact which has occurred in other cases, but which is nevertheless extremely rare, gives room, to a certain extent, for the admission, that, in so sudden an accouchment, the infant may fall from a certain height upon something which may wound it, and the umbilical cord may be broken. These accidents, in their full extent, are not impossible. The rupture of the fourchette appears inevitable if the child be at its full term and well formed.

We have before seen what fatal circumstances may render it impossible for a mother to bestow on her infant the first necessary attentions. There are some details which, in themselves, are foreign to the purpose in the examination of the mother, but which may furnish useful inductions: thus it would be well to know how long a time has elapsed since the accouchment, whether the woman accused has really been in labour at the time supposed, and what relation there is between her state and that of the infant.

VI. *Of some questions the solution of which greatly contributes to establish the fact of Infanticide.* 1st. *Was the child born dead or living?*—The principal proofs that an infant has lived, are furnished by combining anatomical inspection with hydrostatick experiments upon the lungs; but many circumstances may render the investigation extremely difficult: thus, if the fœtus has been born many days—if putrefaction has already disfigured the whole body, and deeply affected the pulmonary tissue—if the body has been subject to the influence of external causes which increase its tendency to putrid decomposition, how can it be discovered whether the infant was born dead or living? When putrefaction has not commenced, it is generally possible to distinguish the contusions and wounds caused during life from cadaverous phenomena. The examination of an ecchymosis, and the certainty that it is a vital phenomenon, may still leave doubts; but a slight contusion could not have killed an infant: if there has been great violence, great internal disorders will correspond with the external bruises. There are modes of premeditated Infanticide of which the indications are very equivocal: in such cases the distinction between an ecchymosis (a phenomenon always indicative of life,) and a cadaverous sanguineous infiltration, becomes extremely impor-

tant. Even when the examination of the body of the infant, furnishes no proof that it has respired, we must not conclude that of course death has preceded the accouchment. Does not the infant live in the uterus without exercising this function? May not different known causes retard the period of inhaling atmospherick air after birth? Are not the palpitations of the heart a much more certain indication of life? There is no doubt of the life of the child if an ecchymosis be caused after its birth. The absence of hemorrhage by the umbilical cord, is quite an equivocal proof of the death of the fœtus in the womb; and clots of blood at the extremity of the cord or around the mouth and nose, are not sufficient proofs that it was born alive. The knowledge of what accidents may have happened to the mother during pregnancy, is not a matter of indifference, and it is necessary to note carefully all the causes of this nature which may have had a fatal effect upon the fœtus while in the womb. Pulmonary docimasy is the principal means for proving that the infant was alive after the accouchment.

2d. *Was the infant, if born alive, capable of living?*—This question has been discussed in the examination of the external state of the body of the fœtus.

3d. *Was the infant alive or dead previous to the accouchment?*—The solution of this question is not always easy to be obtained. We must ascertain whether the mother, during any period previous to the accouchment, has been subject to the influence of causes which might have affected the life of her child; whether, for example, she has experienced phlegmasies or other violently acute maladies, a great commotion after a fall, great floodings or any other considerable hemorrhage; whether she has given way to violent passions; whether she has felt extreme moral pains or extreme terror. The ill usage she may have received, and the accidents she may have experienced, must be compared with the examination of her constitution, her manner of living, and the course of conduct pursued after any accident. The following phenomena are generally to be considered as the cause of the death of the fœtus: sinking of the abdomen, and retraction of the navel within the belly; a sensation of great weight in the abdomen; a sudden cessation of the movements of the fœtus, which generally follows extra-

ordinary movements. There are particular signs which the accoucheur may obtain by feeling: when the head presents itself in the passage, he will perceive by his finger any vacillating bones, or integuments without elasticity, soft, putrefied, and on the point of separating from the bones; sometimes an infected sanies runs from the uterus, and brings with it pieces of putrefied flesh, and if it be possible to feel the umbilical cord, it is found to be flaccid and destitute of pulsations. Each of these signs, taken separately, may induce an error, but a combination of them leaves little doubt. Alberti thus describes a fœtus dead in the womb: suppleness; flexibility of the body; softness; a livid appearance; a yellow or wax colour of the integuments; depression of the belly; indications of putrefaction; indentations; crevices; different coloured spots on the skin; an issue of putrid sanies by these solutions of continuity and the natural openings; putrefaction already developed, especially near the umbilical cord; flaccidity; yellowish colour; lividness and partial decomposition; solution of the cord; sinking of the fontanelles, which are in some measure opened; and a chachectick and œdematous state of the corpse.

Some fœtuses which have been dead in the womb many days, may be born without exhibiting very evident signs of putrefaction; but there is always in such cases an unnatural softness of the after-birth; the body of the fœtus is dry and horny, and the umbilical cord contains clotted blood.

Great care and attention are required of the Medico-jurist in his examinations in cases of Infanticide, as well as great sagacity to discover the truth beneath the veil with which it is covered. It is therefore very necessary to lay aside all prejudices and attend only to facts. A new born child was found dead, says Voltaire, near a great city: a young woman was suspected of being its mother: she was imprisoned and examined: she answers that she cannot be the mother of this child, because she is now pregnant. She was visited by what is called a jury of matrons: these silly women attest that she is not pregnant; that her belly is swelled by the retention of the menses. The unhappy woman is threatened with the torture: overcome by fear, she confesses that she has killed her pretended child: she is condemned to die, but is saved by the good fortune of bringing forth her child at the moment when her sentence was reading.

Professor Chaussier once saved the life of an unfortunate woman who was about to be condemned to death upon a pretended proof of Infanticide. The Medico-jurist should always have these great examples before his eyes.

(J.F.F.) M. MONFALCON.

ARTICLE IV.

SURGERY.

Case of Injury of the head; communicated by J. C. DUNLAVY, *M. D.*

A BOY five years old, received a severe contusion on the right side of the head by falling on a stone while attempting to imitate the practice of tumblers. The injury appeared to be confined to the integuments, and was of short duration. Some weeks afterwards he became indisposed without any evident cause. He first suffered headache, nausea, vomiting, high fever, diarrhœa, and was frequently observed to start in his sleep and scream violently. The integuments of the head became tender, and he referred the pain to the parts directly beneath the seat of the former injury. These symptoms gradually increased for several days.

Thursday morning, Sept. 18.—Complains much of nausea and perverted taste—tongue foul. About 12 o'clock he was attacked with severe chill which lasted about two hours. During the continuance of this chill, he successively complained of blindness, deafness, violent pain and a burning sensation in the head. Soon after the accession of these symptoms, the whole of the left side of his body became convulsed. I found him still in convulsions two hours after they had commenced. The convulsions were not of a violent kind, but rather a regular convulsive twitching of the muscles. His face has a purple appearance—foam issues from his mouth, and his countenance has an expression of great anxiety—respiration anhelous and laborious—pulse at the wrist small, frequent and irregular; full and strong in the neck and temples—the heat of the head above the natural temperature—hands and feet cold—his jaws closed and incapable of being separated by any force it was deemed advisable to employ.—The pupils of his eyes widely

dilated, he lay apparently insensible to surrounding objects, occasionally waving the hand of the side not convulsed, and raising it to his head.

He was bled freely from both arms at the same time, almost to fainting. Purging was induced by cathartick clysters, and, as soon as practicable, a mercurial cathartick was administered. The effects of the loss of blood were at first alarming, but it was soon followed by an abatement of all the symptoms, and a complete intermission of the convulsions. The left eye, which had been convulsed in a remarkable manner, was now spasmodically drawn to the external angle. After an interval of an hour the convulsions returned. The pupil of the right eye was now contracted, and had a fierce look and inflamed appearance. The other still dim, dilated, and frightfully distorted. The blood already drawn, had exhibited a sizy appearance, and as the symptoms seemed to require it, blood was taken from the arm to an extent equal to the first venesection. Clysters and catharticks were repeated—his head was directed to be kept constantly wet with cold water—sinapisms were applied to his feet—a large blister was applied to the back of the neck, and one to each wrist.

8 o'clock, P. M.—There has been only one considerable intermission of the convulsions—left eye still insensible and distorted—right eye red and fierce—appears sensible to sound—pulse at the wrist fuller and stronger than before the first venesection—watchful and restless—heat of his hand so great that cloths dipped in cold water and applied to it, become warm in a few minutes. About eight ounces more of blood was taken—pulse ninety-eight.

11 o'clock, P. M.—Has had several intermissions of the convulsions since dark—swallows every thing offered with voracious greediness.—He, in fact, seems to know no difference between pure water and the most nauseous drug.

Thursday, 6 o'clock, A. M.—Has remained watchful and restless all night, rolling his head on the pillow, and sawing the air with the hand of the side not convulsed. Convulsions continued with only slight intermissions until 2 o'clock; since which he has been free from them. He now appears to doze occasionally, but suddenly starts as if affrighted. The determination to the head not so great as yesterday—general heat and force

of the circulation increased—has purged freely, during the night and discharged one worm. Strabismus removed—pupil of the left eye still dilated—the other not so red and fierce.—A small quantity of blood was taken, and a cathartick administered—continue the cold affusion. The blisters having produced full vesication were removed.

5 o'clock, P. M.—Convulsions returned at 2 o'clock, and have continued at intervals, since. During the day, sinapisms were kept to the feet, and in the afternoon blisters were applied to the ancles. Eyes have a better appearance—retains his sense and recollection during the paroxism—fever much abated.

Friday morn. 3 o'clock.—There has been an interval of the convulsions of five hours, during which time a constant irritation was kept up by the blisters on his ancles. Soon after they were removed the convulsions returned. Has purged frequently yesterday and during the night—stools have no unusual appearance—eyes appear natural—pulse ninety-four—immersed in a warm bath rendered stimulating by the addition of common salt—He remained in the bath twenty minutes when the convulsions ceased. When taken out a rubefacient was applied to the limbs. On Saturday and Sunday he had frequent returns of the convulsions. Pulse frequent, but the heat of the surface not above the healthy degree. He was immersed in a warm stimulating bath during the paroxism, and rubefacients were applied during the interval—His bowels were kept regular by laxatives.

On Monday morning, about daylight, the convulsions finally ceased, leaving him in a state of extreme debility—pulse one hundred, feeble. At this time it was discovered that he had a suppression of urine. It was soon removed by fomentations to the abdomen and a few doses of rectified spirit nitre and paregorick united. His pulse began to flag, and his extremities became cold—sinapisms applied to his extremities—a teaspoon full of warm wine every ten minutes.

Tuesday.—Pulse fluctuating, between ninety and a hundred; heat of the surface below natural—takes the wine freely, but no other nourishment.

Evening.—Recovers strength hourly—pulse moderately full. Refuses every thing but wine.

Wednesday.—Continues mending—pulse eighty—extreme-

ly impatient—fights every body about him—takes half the usual quantity of wine, but no other nourishment.

Thursday.—Rapidly recovers—refuses wine and receives other nourishment.

His convalescence progressed without any untoward symptom, except an incontinency of urine, which troubled him for a few days, and in a few weeks was entirely recovered.

Case of Fungus on the scalp; communicated by Dr. MARTIN D. LATHROP, *of Waynesville.*

MISS C—— S——, aged 13 years, of a delicate constitution, was affected, about the first of October, with a small tumour on the hairy scalp, occupying the centre of the parietal bone of the right side. No cause of this disease could be assigned. It was somewhat elastick and free from pain, but was observed to increase much faster than an ordinary tumour. On the 1st of December it became painful, and projected in different situations, at which points the skin was discoloured and finally burst. Through these openings a spongy fungus protruded and increased rapidly. The pain became severe, and the skin adjacent to the disease of a fiery redness, and very sore when touched. The tumour was as large in circumference as the top of a tea cup—was raised an inch above the common level of the integuments, and, in figure, resembled a damask rose. Its whole surface was in a state of ulceration, discharging an ill conditioned matter, mixed with bloody serum, which was very fetid, and excoriated the neighbouring parts. Some of the glands of the neck were enlarged and indurated, but her general health was not much impaired. This was the situation of the patient when I first saw her on the 20th of January. Believing that a free removal of the disease could alone save the patient, I made a circular incision encompassing the tumour, and at a distance of about three fourths of an inch from it down to the bone; then removed the whole tumour, leaving the pericranium entirely bare.

The wound was lightly dressed with dry lint, and the patient directed to take eight drops of Fowler's solution twice a day, a grain of the extract of Cicuta morning and night, which doses were gradually increased. The tumour, on examination,

was found to consist of a soft substance of a dark colour, formed into cells by an apparent membrane containing the fluid mentioned.

On the 25th of January, the wound suppurated imperfectly; the medicines and dressings were repeated. Some appearances of fungus arising from the edge of the wound, on the 27th, when a solution of arsenick was applied. On the 29th as the cavity formed by the removal of the tumour was half filled with loose granulations, a compress was applied as closely as the patient could bear.

By these means, varied according to circumstances, the edges of the sore were brought by degrees to assume a healthy appearance. By the 25th of March the pericranium sloughed, leaving a circumference of bone entirely denuded, black and carious, larger than the original disease. By the 1st of September following the carious portion had completely exfoliated. It was irregularly oval. measuring three inches one way, and three and a half the other, and in thickness, corresponded to the external table of the skull.

Healthy granulations immediately ensued, the wound cicatterized and the patient is now restored to health. During the whole course of the disease, she had no hectick symptoms, but remained free from any constitutional affection, excepting the debility induced by the excessive pain &c. How far the internal remedies contributed to the cure I will not undertake to decide.

ARTICLE V.

YELLOW FEVER.

WE have been politely favoured with the perusal of a volume by Dr. Chabert, of New Orleans, entitled "Reflexions Medicales sur la fiévre Jaune," and regret that it was received too late to allow us an opportuniy of giving an analysis of it. It adds a mass of interesting testimony to our proofs of the Non-Contagiousness of Yellow Fever, heretofore so clearly shewn from the experience of Rush, Chapman, Jackson, and a multitude of the ablest and most experienced medical philosophers in this country and elsewhere. The almost annual experience

of Philadelphia, Baltimore and New York, to say nothing of the daily occurrences at New Orleans, have unquestionably established the fact that this terrible disorder is of *local* origin, and is not *contagious*. This triumph of fact over assertion—of reason over prejudice and superstition, bids fair to be more widely extended and justly appreciated as facts are collected. It has not been quietly assented to. The doctrine has been assailed, and its defenders attacked with every weapon of force and all the ingenuity of artifice; to which has been opposed the impenetrable shield of facts, undoubted, sustained, multiplied, and varied in every possible form, until the assailants in utter impotence have become silent, or occasionally vent their spleen in sneering at what they connot controvert, and if they would reason, could not disbelieve. This is characteristick of human nature, and by no means uncommon in relation to every long established prejudice. Inoculation, vaccination, the cool regimen, and numbers of other improvements in medical treatment, have been as violently opposed. Not only have strenuous opponents arisen in such cases where the proof depended on testimony which might not always be at hand, but in things positively demonstrable, and open to the daily observation of all mankind. Who has not seen the attempt of Riolanus to disprove what Harvey had *demonstrated* relative to the circulation of the blood? Who may not still see men, calling themselves philosophers, voluntarily holding their hands before their eyes, and then attempting to prove that there is no such thing as light?

It is not to be denied but that the advocates for the contagiousness of Yellow Fever, manifest much dexterity in attempting to support their favourite though languishing doctrine. When challenged "to *produce instances*" of the personal communication of the disease, they answer "with cases in point upon authority the most unquestionable," whose force is evaded by their adversaries "by contending that the cases occurred under the same circumstances of atmosphere, and can prove only that the patients were operated upon by the same general influence which produced the disease in the persons from whom we contend the disease was derived by contagion." "Now, what better evidence can be required—what more conclusive testimony can be given, to prove the contagiousness of any disease, than

instances of persons sickening of that disease after close intercourse with others labouring under it?" Why this better evidence—this more conclusive testimony, could be given, (if fortunately it did exist,)—bring forward cases where persons *catching* the disease in an acknowledged impure atmosphere, carried it to and communicated it in a pure air to others. Are not the Small Pox and Measles thus communicated, and will any circumstance of pure air, prevent a man susceptible of either, from taking the disease when he comes in contact with an infected person? This requisition of "better evidence" is mere subterfuge, and the following sentence mere quibble:—"Nor can inoculation justly be *required* as the *test* of contagiousness of a disease; for some diseases, allowed by all to be contagious, cannot be thus communicated.—Let measles, hooping-cough and scarlatina, suffice in proof of this assertion." They will *not* suffice, because it *is mere assertion.* Measles have been communicated by inoculation, and whether the other two can be, remains to be tried. If small pox, lues, psora, do not appear after inoculation in a proper number of individuals, under favourable circumstances, we say, with justice, that the matter with which the inoculation is performed is effete: we never dream that the disease is not contagious. Until "better evidence" than "assertion" is given, we shall be sceptical as to the impossibility of communicating any contagious disease by inoculation.

When a man high in office and possessed of patronage, becomes the promulgator of any opinion however absurd, and contrary to the united testimony of those acquainted with the truth of the facts, he still finds defenders and sustainers of his errours. "Nor can we refrain from laughing," at the strong resemblance which exists between these and an unfortunate poet laureate, who is obliged to serve up a regular dose of flattery, on every proper occasion, to assure his patron that "popular feeling is with him;" when in reality two thirds of those who have heard his opinions are divided between pity for, and laughter at him—and the remainder are perfectly indifferent what his notions may be. It is equally "food for mirth," to hear a scribe by *profession*, hurling the charge of "insignificant scribblers," against all who venture to question the supre-

macy of his idol, and stating all to be affected by "*scribendi cacoethes*" who venture, in proposing a doubt of his infallibility, to enquire after the truth?

"*To advocate the truth*" can never be affected by illnature, nor by resorting to invective. He who descends into the arena of philosophical discussion may come "armed to the teeth," but must strike fair. He must use argument instead of reproach—produce facts instead of assertion—must procure conviction instead of exciting anger. The merits of the individual he defends, if he will make himself the champion of the *man*, instead of the investigator of a truth, should rest on more than mere general assertions, which may be a tribute rather of feeling than understanding. If he spares his temper and exercises his reason; if he reflects that other men have a right to the possession and expression of their sentiments as well as himself: if he is actuated by a love of truth, and a wish to convince others of their errours by pointing out their fallacies; and if his zeal is according to knowledge, we wish him all good fortune, "if he can require any encouragement, in addition to the animating complacency he must derive from the consciousness of performing his duty." He may rest assured that "the common sense of the publick cannot permit them to be so far led away by medical sophists as to disregard the testimony of their senses. "They will not be persuaded that yellow fever arises from comets, earthquakes, eclipses, volcanoes or privies, nor yet from any secret influences of the atmosphere," any more than they will believe that the yellow fever is contagious, after seeing hundreds of sick persons taken out of infected districts, and removed to their friends in healthy situations without communicating any disease.

ARTICLE VI.

MISCELLANEOUS.

AMERICAN INTELLIGENCE.

WE are happy to acknowledge the receipt of the Journal of the Academy of Natural Sciences, for June 1822, which contains several papers of the most interesting character to scientifick naturalists. The institution from which this Journal emanates is equally honourable to the city in which it is placed and to the scientifick character of our country. Originally begun by a few individuals, it has daily increased in usefulness and ability, and its members have been animatedly pursuing the object of their association, without remission.—Almost all the resident members have been engaged in the practical investigation of the kingdoms of nature, and are distinguished both at home and abroad by their contributions to the stock of scientifick knowledge. The names of Maclure, Collins, Ord, Le Sueur, Troost, Say, Nuttall, Lukens, Patterson and a great number of highly other highly distinguished men, might be mentioned in confirmation of this. We have no doubt but that this institution is destined to give a tone and character to the study of natural science in this country, and as their Journal is a model of conciseness, perspecuity, and severe philosophical accuracy, we would recommend it to all those who are desirous of learning the improvements made in these studies, from persons so eminently qualified for instructing.

The present Number contains a description and chemical analysis of a new mineral, called Jeffersonite, by Messrs. Keating and Vanuxem; a new chrystalline form of quartz, by Dr. Troost; a paper on the Gales of the atlantick states, by Dr. Hare; a description of some new species of fish of the genus Cichla, by Mr. Le Sueur; and of some American shells, by Mr. Thomas Say.

The Journal of the Academy of Natural Science, of which one volume has appeared, is generally embellished by beautiful engravings of the objects described, from the pencil of Le Sueur, who adds to a profound knowledge in natural science, the most masterly skill in the graphick art.

Discovery in Mathematicks.—M. J. Dorfeuille has informed us of a new application of the principles of numbers, made by his father M. G. Dorfeuille, and systematized by him under the title of Octorithmal Calculus. It seems to have been designed to facilitate the verification or proof of the fundamental operations of arithmetick. The manuscripts, which are numerous, have been placed in the hands of a very able mathematician, for arrangement and translation, and we hope in our next number to present our readers with a fuller and more satisfactory annunciation of the merits of the discovery.

The following account of it is from the manuscript of the discoverer: "Every zealous instructor has frequently felt the necessity of having a method, which at the same time that it should abridge the labour of proving the calculations of his pupils, would also guard him from the possibility of deception. In this two fold point of view, the new method is useful, but its greatest utility consists in furnishing the means of superintending 100 scholars in Arithmetic with less labour and loss of time, than 10 would require without its aid. This is an important consideration in the Lancastrian system of instruction for I ask of any person of discernment; how is it possible to pay the necessary attention to 5 or 600 pupils in arithmetick during the short of space of time that remains to the teacher, after going through the indispensable routine of an establishment of 11 or 1200 scholars?"

The following problems are transcribed from the same papers, viz.

"1st. Representing any number of 8, 10, or 12 figures by A; by Z, a number of which we know only 2, 3, or 4 figures, of 8, 10, or 12 of which it consists; it is required to find the number X so that $AX=Z$.

"2d. The conditions remaining the same, find X, so that $\frac{A}{X}=Z$. Every reader at all acquainted with the subject will at once perceive that the resolution of problems of this nature is absolutely impossible by any known method, as it depends essentially on a species of numbers which though very analagous to logarithms, differ from them in this important particular, that they are easily recognized (though isolated and even mutilated) by characters which are peculiar to them.

"3. A monarch of the Indies, the most magnificent of his time,

having exhausted his treasurers, applied to Sessa, a politician and philosopher to whom all India attributed the ingenious invention of the game of Chess. This prince, before proceeding to tax the people, wished to acquaint himself with the receipts of the treasury during the reign of his great grand father Mahomet. Sessa made the desired reseaches, but the only document he was able to procure, had suffered so much from time and moisture that the figures were mostly effaced. It was conceived in the following terms, viz.

The year ——— of the reign of Mahomet.

The total amount of the receipts into the treasury during ——* —— years was 8 . . . . . 72$, which makes . . . . . 7 . 544 per annum, and per month . . . . . .

"The prince was in despair, but Sessa reassured him and undertook to restore the lost figures by calculation, which, after some trouble, he accomplished.

"I demand what method he pursued, what was the amount of the annual receipt of the treasury, and the number of years during which the first sum was accumulated.

"N. B. The points in the above problem stand in the place of the lost figures, and the bar marked with an asterisk, is a number to be found."

Case of rupture and inversion of the uterus of a cow.—This animal, belonging to a respectable gentlemen of Cincinnati, was observed, during parturition, to be in a great deal of distress, by which a considerable number of persons were attracted to discover what would be the result. During a violent effort at expulsion, a noise was heard by the by-standers, which they compared to the sudden rending of a strong cloth, and it was very plainly to be seen, that the calf had escaped into the cavity of the belly. The owner of the animal then proposed to knock her on the head, supposing she would die in a lingering and painful manner. Some one present interfered, and offered to deliver her by bringing the calf through the laceration of the uterus again into the cavity of the organ. Accordingly the hand and arm were introduced until the whole arm, as high as the shoulder, was passed in. After some time spent in searching for the feet, the assistant drew them partly into the uterus, when an effort was made by the cow, which expelled the uterus and the calf at the same time. The uterus was fairly inverted

and had a very large rupture extending obliquely across the fundus.

As the uterus had been received on a cloth and was not allowed to come in contact with sand or dirt, an attempt was immediately made to return it by two persons, who gathered it up as closely as possible, though without much attending to the order in which it was to be reduced, after many strenuous attempts they succeeded in returning it. The cow was fed a day or two on thin slop, but in a few days walked to pasture, and is, at this time, (six weeks since the occurrence of the laceration and inversion,) perfectly well, and gives a gallon of milk daily.

Natural History.—We are very glad to inform the lovers of Natural Science, that the WESTERN MUSEUM, established at Cincinnati, is now about to assume its proper rank as a scientifick institution. Mr. ROBERT BEST, already so favourably known in this quarter as an ingenious and scientifick chemist, and Mr. J. DORFEUILLE, who has long been exclusively devoted to the study of Natural Science, are the gentlemen who are employed in re-arranging the specimens from the different kingdoms of Nature. Very large additions both of American and foreign specimens have lately been made, together with a very considerable number of valuable antiquities from Egypt, Greece and Rome. Among these is a beautiful specimen of the papyrus, having a very fair and distinct legend, which is supposed to be written in the Coptick or some other dialect of Egypt. The zoological specimens are arranged according to the Linnean system: the minerals will be displayed in the order laid down in Cleaveland's Mineralogy. The Greek and Roman coins and medals will be arranged in chronological order, and be accompanied by brief historical notes. It cannot fail to strike an observer, that these arrangements will be of the highest value to persons who engage in such studies. In point of *extent* the WESTERN MUSEUM will be the *fourth*—in *scientifick* arrangement it will be the *second*, in the United States.

Apparatus for fractured thigh bones.—In our second number we presented an account of an apparatus, as improved by Dr. Hartshorne. At that time we had not received the 6th number of the Philadelphia Journal of Medical and Physical Sci-

ence, which contains a memoir on fractures of the thigh, by Prof. Gibson, and an account of his modification of HAGEDORN'S apparatus, bywhich it is rendered more beneficial and convenient. The following account is all we have room for, at present.

"Two splints, half an inch thick, formed at the upper extremities like the head of a crutch, five inches wide, immediately below this head, five feet and a half in length and tapering towards the lower end, which is about two inches wide, constitute a sort of enclosure for the body and limbs, from the arm-pits beyond the feet. The lower end of each splint, to the extent of a foot, is straight, and has six or eight holes, at equal distances, large enough to receive a stout peg, intended to secure the foot board. Shoulders, also, are made in the splint, just above the upper peg hole, for the purpose of preventing the foot board from ascending. The foot board itself is made of seasoned tough wood, is an inch thick, about twelve inches long and nine high. At different distances in it, there are three rows of slits, half an inch wide and an inch and a half long, intended for the gaiter straps or bandages which secure the feet to the board. Two other slits or mortices, of the same kind, receive the lower ends of the splints, making in all eleven perforations through the foot-board. The gaiters are made of soft leather, lined with buckskin; or of strong linen, well quilted on the inner surface; they are laced to the leg above the ancle by a cord, and have four straps to each, two near the instep, and two near the heel, sufficiently long to pass through the foot-board and admit of being tied on its back part. Two cushions or junks, made of old linen, the breadth and length of the splints, and an inch thick, together with another cushion of the same kind, and long enough to reach from the perinæum to the foot; a splint or junk cloth, similar to that of Dessault, wide enough to enrol the splints several times, and long enough to extend from the perinæum to the ancle; several tapes or pieces of roller, constitute the remainder of the apparatus.*

Antecedent to the adjustment of the limb, and the application of the splints and bandages, a bedstead should be selected, with a board bottom, and over this be placed a thick and firm mattrass. If a feather bed be employed, it will be quite im-

* To prevent the patient from removing his armpit, from the crutch-like head of the splint, a strap is fastened to it and crosses the shoulder.

possible to prevent deformity and inconveniences, however well contrived the apparatus may be. This is a point, therefore, which should always be insisted on by the surgeon, and if no mattrass be at hand, blankets or quilts must be substituted, and laid over the bedstead or floor. The mattrass being covered by a sheet, the first step on the part of the surgeon, is to take six or eight tapes, or pieces of common roller, three or four feet long, and arrange them transversely at different distances, from the foot towards the head of the bedstead. The splint cloth is next laid over the tapes—its longest diameter running parallel with them. The patient is now placed on the mattrass, his clothes being previously stripped off, or cut away as occasion may require, his body is kept perfectly straight, and both limbs placed as accurately as possible over the centre of the dressings. Extension and counter-extension being made, and the ends of the bones coaptated, the splints previously covered by their cushions, which are placed on the inner sides, and serve to take off any unpleasant pressure, are next rolled up in the splint cloth, and brought closely in contact with the body and limbs. The surgeon next fixes the gaiters to the ancle, and fastens the foot-board to the splints. The feet, having two small cushions beneath them to rest on, are next secured to the foot-board by passing the straps through the holes, and tying them on the outside. All that remains is to fix the third cushion or strap between the thighs, to pass the tapes around the limbs, splints and body, and secure the whole, so as to constitute, as it were, one solid piece.

As all patients, with fractured thighs, experience more or less inconvenience from the difficulty of having a passage, and as this difficulty will exist with any apparatus, however constructed, it becomes very desirable to obviate it as much as possible by employing such means as are the most simple, and at the same time most effectual. The ingenious contrivance of Mr. Henry Earle,* for suspending the patient, temporarily, on a strong canvass or sacking bottom, stretched upon a frame, and raised by pullies or a jack, however well adapted to a hospital or any large establishment, cannot, from its complex and expensive structure, be introduced into private practice, even in a large city, much less in country places. Fortunately,

* See Pott's works, by Sir James Earle, vol. i.

however, every possible advantage may be derived by using Mr. Earle's principle, together with the most simple but effectual part of his machine. For several years past, I have used a common frame, seven feet long and three feet wide, upon which is tacked a sacking bottom, having a hole in its centre about the size of the crown of a hat. The sacking bottom is supported by girths passed beneath it and secured to the frame. As this simple apparatus can be adapted to any common bedstead, it may be kept constantly on hand by the surgeon, or manufactured, at a few minutes notice, if required, by most mechanicks in any country place. When prepared it will be only necessary to lay the frame over the mattrass, place the dressings on the sacking bottom, (previously covered by a sheet with a hole in it corresponding to the one in the sacking bottom) and the patient on the dressings, taking care that his buttocks be exactly adapted to the opening. Upon this very simple contrivance, the patient will lie with as much comfort, as on the mattrass itself, and whenever he desires to have a stool, it will only be necessary for two assistants, one at each end of the bed, to raise the frame six or eight inches from the mattrass, and support it in this situation by a small block, placed at each corner of the frame, or by a moveable leg or foot permanently attached to the frame. As I have employed this machine upon several occasions, I can speak with confidence of its efficacy, and can recommend it as equal, if not superior, to the original apparatus itself, which I have frequently seen in operation in the European and American Hospitals. But whether this modification of Earle's bedstead be employed or not, I have ascertained to my satisfaction, that the draw sheet, or dish or pewter pan, articles in common use, in cases of fractured thigh, can with greater facility be employed when the patient's limbs and body are secured by the plan I have ventured to propose, than by any other mode. Indeed, so firmly are the limbs supported against each other, and so completely is the body fixed, that the whole may be said to constitute but one piece, and the patient can be turned or raised, and the pan slipped beneath him, without, in the slightest degree, disturbing the fragments of bone. *Phila. Journ. of Med. and Surg.*

*Abstract of a Report to the Academy of Medicine of Philadelphia, on the means by which Absorption is effected.**

THE Committee of the Academy of Medicine of Philadelphia, appointed to investigate, by experiment, the question, "Whether the veins absorb, and whether positive evidence can be obtained that the lymphaticks perform that function, or that the lacteals absorb any thing but chyle"—

Report—That they have spent considerable time upon the inquiry entrusted to their charge, and have performed a considerable number of experiments relating to this subject, but intending to prosecute it further, had not distributed their attention in due proportion to all the parts of which it is composed, when unavoidable engagements, on the part of all the members, and the sickness of one of them, rendered it impossible, at the present time, to proceed. Not being able to promise themselves a speedy renewal of their undertaking, or to assign, at present, the precise time when they can renew it at all, they have concluded to make a report, embracing the subject in its present unfinished state.

Some points, we trust, not without importance, will be found fully established, according to the ordinary operations of human reason;—others will want further confirmation and elucidation, and some have been only broached.

In our experiments, in which we employed forty-three animals, we used much precaution to insure their accuracy. The whole of the Committee were present at the greater part of them, and all the important ones were so frequently repeated with similar results, that the members occasionally absent had opportunities of making up for loss. Several scientifick gentlemen, among whom we may name Dr. Chapman, Dr. Brown, of the Transylvania University, Dr. Troost, and W. Keating, favoured us occasionally with their presence and assistance. We are particularly under obligations to Dr. Troost and W. Keating, for their very polite and prolonged assistance in our chemical examinations of the fluids.

* We received the number of the Journal containing this report, at a very late period, and no circumstance could add more to our regret in not being able to lay the whole of the experiments before our readers, than the loss of so good an opportunity of making them better acquainted with such excellent investigators, more especially with those skilful and long experienced anatomists, our friends HARLAN and LAWRENCE.

It has sometimes been made an objection to physiological experiments, perhaps in too general terms, that so great violence is done to the system, that it must materially affect the results; and that phenomena arising from this source, may be mistaken for those, owing to the simple presence of the articles employed, and compatible with a state of life and health. Of the importance of this observation, and the necessity of guarding against such errors, we trust we have been fully aware; and it will be seen that this reflection has given rise to operations conducted for the purpose of comparison. But at the same time, we presume that this truth should not stand as a general objection to all inquiries of the kind, or to those in which the above caution has been held in view.

Other and particular precautions employed, will be mentioned as we proceed; and we have only to add, that we have reported experiments which have appeared fallacious, (noting, however, the fact,) for the sake of candour: in order that we might be sure of not withholding any thing tending to establish doubtful questions.

We commenced with repeating and varying some of the experiments of J. Hunter, on the absorption of coloured fluids by the lacteals. These we performed with different articles, on a goat, a male and a female of the sheep, a dog and two cats, repeating the operation several times upon each individual, and always *without* success. We employed the following articles, viz. indigo mixed with starch, with milk, and with water; milk alone, and infusions of rhubarb, madder, alkanet, and cochineal, the latter, both simple and rendered purple by the addition of carbonate of potass. Our practice generally was, to select a portion of small or large intestine, secure it by a ligature at both ends, inject at or near the temperature of the animal, and then return the part into the abdomen, or attempt to retain its warmth by artificial means. Where the canal contained much fluid, it was removed, but the small quantity which is naturally found on the mucous membranes, was suffered to remain. In some instances the lining surface was rendered as clean as possible. In these cases, after a short interval, the lacteals, if originally colourless, continued so, and if filled with white chyle, became colourless and transparent. In this result, we are compelled to differ from the recorded au-

thority of Hunter, and to agree with the observations of Magendie, Flandrin, Tiedemann and Gmelin.

An elective process with regard to colour, is well known to take place in the common healthy operations of digestion; as the alimentary tube is filled with substances of various original colours and below the duodenum deeply stained with bile, and notwithstanding this, the chyle is always of the same pure and uniform white.

In his experiments to ascertain this point, Bichat was not more successful than ourselves, or than the above named authors. "J'ai repeté souvent cette experience," says this writer; "le "fluide injecté, a été bientot absorbé, *mais non la matière qui "le colorait;* en sorte que cette matiere, plus condensée apres "l'absorption, teignoit la surface sereuse; les lymphatiques "etant transparens, comme a l'ordinaire."—*Anat. Gen. vol. iv. p.* 519.

Mascagni was induced to believe the reverse of our conclusions, from the following observations. 1. The hydropic fluid varies in density and colour in different cavities, and it was always observed, that the lymphatics contained a fluid exactly analagous. 2. In two bodies having an effusion of blood in the thorax, this author observed the absorbents of the lungs engorged with blood. 3. In a man who became emphysematous after having been poisoned, these vessels were distended with air.

These cases would appear at first sight sufficiently conclusive; but we believe they can be explained without the implication which he draws from them. It is stated by Mascagni himself, that water can be made to pass from the arterial system into the lymphatics; and that this mode was practised, for the purpose of rendering the latter vessels visible. If, therefore, the exhalents, which in their natural state, transmit only the most extenuated halitus, are capable of so much dilatation as to allow these grosser fluids to pass through them, what is there to prevent the same deranged operation in those capillaries which connect the visible arteries with the lymphatics? It is also the fact, according to Bichat, that when the serous membranes are inflamed, the subjacent lymphatics may be seen distended, like the arterial capillaries, with red blood.

* I have often repeated this experiment, the injected fluid has speedily been absorbed, *but not the colouring matter*, because this matter, more condensed after the absorption, tinged the serous surface; while the lymphatics were as tranparent as usual.—*Bichat, p.* 519.

The strongest instance that we have met with upon this subject, is one furnished by Magendie, (Precis Elem. vol. iv. p. 193,) in opposition to his own views. It is that in which the celebrated Dupuytren found the lymphatics of the upper part of the thigh filled with a fluid resembling pus, in a case where a large abscess existed, in the course of those vessels. To this case Magendie makes no answer, nor are we prepared to do so; as we can hardly consider the secretion of pus in the same light as a mere exhalation, or suppose so elaborated a fluid to escape in the manner above described.

When differing from high authority in our statements, it affords an additional satisfaction, if we can assign a probable cause for the mistake which we attribute to him. The experiment on which Hunter appears principally to rely, in the doctrine of the absorption of coloured fluids, is that in which he describes indigo as having been visible to him, in the lacteals. We were at one period deceived, ourselves, and thought we had seen the blue colour in these vessels; but we quickly discovered that they were colourless; and that what we saw was only the faint bluishness which transparent substances assume when placed over dark cavities, and was probably reflected from the sky. On holding the mesentery, which we were examining between our eyes and the light, they were seen to be entirely colourless.

In conducting these experiments, as well as some others, our attention was irrisistibly drawn to the entire absence of pain, which the subjects of them enjoyed, while violence of various kinds was done to the intestines. We cut, tied, and pinched them with the greatest freedom, in different parts; not only without extorting cries from the animals, but without discovering the least convulsive twitch or other mark of pain. We are not aware that this has been observed by authors. Bichat* asserts this fact of their outer surface, and ascribes it to serous membranes lining the cavities. The same has also been asserted of the heart and the brain. If this exemption should extend to all those parts supplied by the ganglionic system of nerves, it would form an interesting point of knowledge.

F. Magendie, a philosopher whose name must frequently occur

* Anat. Gen. p. 528, vol. iv.

in the pages of all who treat this difficult subject, has predicated much of the force of the reasonings contained in his treatise on physiology, upon the smell of camphor which he states he detected in the blood and *breath* of various animals exposed to the absorption of that substance, when at the same time it was not discoverable in the chyle. Aware of the existence of much difficulty and uncertainty in indications drawn from a sense so little cultivated, and so irreconcilable to exact mensuration and comparison as that of smell, we were particularly anxious to confirm this part of our inquiries, by removing causes of errour, and by frequent repetition. Accordingly we found, in several instances, that a vessel containing blood or other fluids, appeared to smell very evidently of camphor, when by removing it to a distant part of the room, and either changing the air of the vessel, or pouring its contents into another recipient, the odour was entirely removed; thus proving that it was situated in the air the vessel contained.* With these precautions camphor was inserted in a variety of ways, into the bodies of living animals, and with the following results, which we have arranged in a table, for the convenience of reference at a glance. Our experiments were, from a variety of causes, irregular in their extent; but it is impossible to judge of their effectual weight without embracing the whole.

* We found, however, that living blood possessed the power of concealing the smell of a small quantity of camphor, when mixed with it.

Animals.	Mode of exhibiting camphor.	Lacteal fluid.	Fluid of Thoracic duct.	Blood of gen. circu.	Blood of the portal cir.	Breath.
Ram,	Tincture into intestine tied.	18 min. clear no smell.			31 min. from mesenteric vein. No smell.	
Kitten.	Idem.		59 min. no smell.	58 min. jugular vein. No smell.	39 min. mesenteric vein. No smell.	
Cat.	Half an ounce of tincture into large intestine, half an ounce into small, with half an ounce of mint water, tied.				75 min. mesenteric vein. No smell.	
Terrier female.	Half an ounce of tincture into stomach, and half an ounce into rectum.		40 min. lymph and chyle mixed. No smell.		30 min. inferior mesenteric vein. No smell. Section of the liver. No smell.	
Cat.	Tincture per os et anum	34 min. clear no smell.	36 min. lymph and chyle mixed. No smell.		39 min. vena portarum. No smell. 40 min. sections of the liver. No smell.	
Dog.	Solid camphor into the cellular substance of the thigh. Tinc. per os et anum, and in abdomen.		Upwards of 60 min. lymph alone. No smell.	46 min. right auricle. No smell. 50. Idem.	Sections of liver, no smell, in upwards of 60 min.	No smell.
Cat.	One ounce tincture into abdomen.		No smell.	35 min. Left pleura, did smell of camphor. Blood of the heart smelled less strongly.		
Young Dog.	Two ounces tincture into abdomen.		45 min. chyle. No smell.	10 min. left jugular, 20 min. right jugular, 40 min. transverse vein of the neck, no smell. Pleura no smell. Brain no smell.		Smell of camphor in 10 min. more strongly in 30 min.

Of the two last animals, the only cases in which any camphor was observed to traverse the system, one became instantly insensible, and died, on opening the pleura and admitting air. The other was bled to death from tne above-mentioned veins. The rest of our subjects were killed at different periods from commencing the experiment. We have placed the examination of serous cavities under the head of the general circulation.

From this table it appears in positive evidence that camphor

may and does pass through the system of blood vessels; but it is impossible to found upon observations like these, any inference relative to the mode in which it enters them.

In two experiments with assafœtida, this substance pervaded the whole system in a short time. A third is supposed to have resulted differently, from not having received and retained a sufficient quantity of the drug. We have not, however, investigated its effects far enough to elucidate our questions by it. We remarked that the smell of assafœtida predominated in the mucous surfaces, snd that of alcohol in the serous.

We shall now give another table of experiments, which we performed with the prussiate or ferrocyanate of potass.

Animals.	*Mode of application.*	*Fluid of duct. thoracicus.*	*Serum of Blood, &c.*	*Urine.*
Cat.	Swallowed one grain and a half of the salt in two ounces of water.		64 min. no blue produced in the serum.	
Cat.	Half a drachm of the salt & three ounces of water into abdomen.	More than 35 min. intensely deep blue.	More than 35 min. deep blue.	
*Cat.	Two and a half ounces solution into abdomen.	More than 35 min. intensely deep blue.	More than 35 min. deep blue.	
*Kitten.	1 1-2 ounce of solution into abdomen, (and a part into cellular texture.) Thoracic duct tied.	35 min. milky, gave a strong blue.	35 min. jugular vein gave a light blue.	
Cat.	Quantity not ascertained injected into stomach.	45 min. faintly, but certainly blue.	No indication.	Strong blue.
Cat.	Two ounces into abdomen, part expelled. Then sol. of sulphate of iron into jugular vein.	35 min. strong blue.	No indication.	
Half grown cat.	Swallowed an ounce of solution.	20 min. no blue.	20 min. no blue.	Clearly developed, blue.

* These two experiments were repeated in the presence of Dr. Brown and Dr. Banks, and the particulars were neglected: but the results were similar.

Animals.	*Mode of application.*	*Fluid of ductus thoracicus.*	*Serum of Blood, &c.*	*Urine.*
Cat.	Swallowed near 2 oz. of solution, and all removed from the stomach except about 1 drachm.	35 min. no indication.	53 min. no indication.	35 min. no indication.
Cat.	Swallowed 2 oz. of solution.	145 mm. no indication.	45 mm no indication	45 min. no indication.
Young Cat.	2 1-2 oz. into peritoneum.	Not collected.	36 mm. blue.	36 min. blue.
Cat.	Swallowed 2 oz. of solution.	45 min. faintly blue.	145 mm. not evident.	145 mm. blue.
Kitten.	2 oz. into abdomen.	More than 10 m. slightly, but distinctly.	More than 10 m. not satisfactorily indicated.	More than 10 min. not discernable.
Cat.	Swallowed 1 oz. 1 ounce into rectum.	Not collected.	60 m. heart not indicated, mesenteric vein not indicated.	60 min. not indicated.
Cat.	1 ounce secured in rectum.	46 min. distinct greenish blue.	46 min. carotid and jugular green.	45 min. deep blue.
Cat.	1 1-2 oz. into cellular texture of each thigh.	80 min. very strongly indicated.	80 min. slightly: liquor pericardii visibly.	80 min. very strongly indicated.
Kittin.	Placed in a bath of the ferroeyanate.	35 min. no indication.	35 min. no indication.	35 min. no indication.

It is impossible to look over the above table, without being struck with the obvious manner in which they indicate the route by which the chemical substance experimented on, entered the circulation. In nearly every instance in which it was found in the blood, the contents of the thoracick duct, if examined, exhibited it in a much more obvious degree; while the kidneys appear as the faithful guardians of the purity of the vital fluid, ready to remove it on its first appearance, and accumulate it among the urine. At the same time, the singular anomalies in some of the cases, may afford a useful caution in such researches; where we might have been totally deceived, had two or three such been the only trials which we made. The slowness and difficulty with which this salt was absorbed from the stomach, is also remarkable; and the last fact gives another example of the non-existence of absorption, in the healthy skin of the animal.

One trial was made of the absorption of chromate of potass, tested with lead, but without discovering it in the system.

Much stress has been laid on the celebrated experiments of Magendie, in which he placed a part of a living body in such

a situation, as to be connected with the rest of the animated system only by a column of blood, and destroyed life by applying poison to the separated part. Of this very striking operation, we have been compelled to postpone the repetition, from causes assigned above; but in the meanwhile, we will venture to state the following difficulties respecting it. Magendie himself states, that he could not produce death in a healthy dog, by directing a column of blood of another dog, supposed to be thus poisoned, into his veins; an anomaly for which we have heard no explanation. 2. We do not know by what precaution the poison was prevented from entering the veins, directly through the opening made in them by the wounds; a mode in which Fontana supposes the bites of serpents often prove fatal. 3. Finally, this experiment has been repeated in this city, by Dr. Somerville, who found, in every instance, that the blood of the separated portion coagulated, and that the circulation was at an end, and of course the experiment was so too.

In two instances, we placed nux vomica in the intestines, after securing the vena portarum by a ligature around the capsule of Glisson. Death took place sooner than in a comparative experiment, where the same violence was committed, and with strongly characterized tetanus and other symptoms of the poison, which it is hardly necessary to say, were wanting in the comparative cases. With a view to discover the effect of spilling this poison, the intestines of a cat were soaked in it, but with impunity; notwithstanding the very active absorption which we found to go on in the peritoneal cavity. In another instance, about which, however, there is a shade of doubt, (§52) death appeared to be accelerated by the presence of decoction of nux vomica, in the intestine, while the mesenterick veins were secured.

We consider ourselves as having established the fact, that this article acts upon the nerves of the part, and that absorption, if it really takes place with this substance at all, is not necessary to its full and complete effect.

The suddenness with which concentrated hydro-cyanic acid destroys life, renders it sufficiently obvious, that it does not act by means of absorption. Nevertheless, we thought proper to make a comparative trial of it, similar to that with nux vomica, and with the same result.

In a late number of the Journal de Physique, there is a paper by Magendie, in which he records experiments, going to prove, the much denied existence of *infiltration* or *percolation* in the living body. He teaches that ink, muriatic acid, and some other matters, may be made to transfer their sensible properties through various membranes of animals. The large strides which this gentleman takes in his inquiries, render it impossible to use any other method in many parts of physiology, than to follow his footsteps. We have tried ink in several ways, described at length, in the account of our experiments, and with the most careful dissection, but always without finding that it had infiltrated.

The experiment on muriatic acid, which this author mentions, appeared to us liable to a very serious objection. It is well known to surgeons, that a blood-vessel separated, for some length, from all its attachments, commonly loses its vitality, in some part of its extent. Our experimentalist placed the jugular vein of an animal exposed in this manner, in a solution of muriatic acid, and informs us that he detected the acid taste within the vessel. We repeated this experiment, but taking the precaution to leave one half the circumference of the vein with its natural attachments. We retained the sanguineous contents between two ligatures, and then endeavoured to imitate his operations in other particulars. No acid taste was found on the inner side. The vegetable blue was so stained with blood, as not to answer our purpose.

With regard to odoriferous substances, we found that camphor and mint could be smelled through portions of the intestinal tube, in which the vital functions were still proceeding.

Neither camphor nor assafœtida, in two experiments made with them could be smelled through the stomach.

We conceive that we have thus established the following facts, in a manner as possitive as this kind of evidence admits. 1. That colouring matters are not absorbed by lacteals in the living body. 2. That camphor is absorbed with much irregularity, and in too small quantity to afford proofs of the route of absorption. 3. That assafœtida is more permeating. 4 That prussiate of potass enters by the lacteals and ductus thoracicus. 5. That nux vomica and prussic acid destroy life by their operation on the nerves, and probably in no other way. 6. That

the assertion of Magendie, that ink will infiltrate in the living body, is incorrect. 7. That the odours of camphor, assafœtida and mint, infiltrate through the intestines. 8. That the chemical and odoriferous substances just enumerated, are transmitted into the system with much more delay and difficulty from the stomach, than from the intestinal tube, and with still less from the serous cavity of the abdomen.

We mentioned on a former occasion, the reasons why we have not prosecuted some of these inquiries further, and it is not necessary to repeat them. Should circumstances prove favourable, we intend to do so on some future occasion.

It can hardly be necessary, in the present state of science, to defend inquiries of this kind, with the mass of the profession, from the imputation of cruelty. But there are many, whose feelings induce them to wish that torture should never be inflicted upon animals, without being perfectly sure, that the inquiries to which they are sacrificed are likely to be productive of utility; and they distrust these investigations generally, as probably futile, and as wasting toil and suffering upon doctrines already demonstrated. To such we can reply, that it has always been our desire, previously to performing a painful experiment, to decide in our own minds, that the object was worthy of it; and with such a belief, we would not shed puling tears over sufferings that are every day freely produced, for the unnecessary amusements of hunting and fishing.

RICHARD HARLAN,
J. B. LAWRENCE,
B. H. COATES.

Case of Tetanus which terminated in recovery.—Tuesday, December 4th, 1821, Lieut. John Whitehouse, a remarkably strong, muscular man, received a slight injury in the right fore finger, which separated the integuments, and partially divided the tendon. The day following, his business was such as to make it necessary that his hands should be continually wet, being frequently immersed in hot and cold water, and exposed to a cold atmosphere. The next day (Thursday) he felt considerable pain in his finger and arm, but not to such a degree as to induce him to keep house.—In the latter part of the day, however, finding the pain increasing, he was induced to retire early

in the evening to bed, but could find no rest. At eight o'clock (evening) the pain began rapidly to increase in the arm of the afflicted side, but no complaint was made till nine, when the pain became intolerable, extending up the arm, accompanied with rigidity of the masseter muscles. Supposing himself going into a fit, he sprung out of bed, and with difficulty forced the handle of a knife between his teeth. The morbid impression from the wound now rapidly extended its influence through the whole system. The muscles about the face and neck, were in constant and rigid contraction, while the muscles surrounding the chest, loins and limbs, were occasionally relaxed, producing various degrees of contortion. In this stage of the complaint I visited the patient, and never did I witness a more distressing scene; nor ever did I more feelingly deplore my own impotency, or that of the healing art. Immediately I perceived that there was no time to loose, and that much might be done; although I had not the least prospect of rescuing my distressed patient from the jaws of death—I directed a warm bath to be prepared with all possible despatch, and, in the mean time, I let blood very freely from the arm, and gave laudanum and brandy as freely as the stomach would bear. The bath produced considerable amelioration of the spasms, but the jaws continued firmly fixed. Deglutition was extremely difficult, and every attempt to swallow increased the spasms —a part of the medicines was of course ejected, which rendered it impossible to ascertain the precise quantity taken.— I therefore directed that brandy, and occasionally brandy and water be given for common drink, and that laudanum be given every half hour in such quantity as would stay on the stomach. I likewise directed that opium and brandy be freely and frequently applied to the abdomen and spine, and that the wound be dressed with lint wet with spts. terebinth. and a soft poultice over the whole. The warm bath was repeated, but without any sensible relief. The spasms, however, in the course of three hours, became sensibly less frequent and violent, and appeared to be confined to the chest, neck and face. At this time, my friend, Doctor Chadbourne, of Concord, met me in consultation; and the result was, to make a complete division of the tendon, and persevere in the course I had adopted, with the addition of ten drops of Fowler's solution to each dose of

laudanum. The next day but little change for the better—injections are forced away with great violence, but produce no fœcal discharge. The difficulty of swallowing rather abated, but the irritability of the stomach increases. There being but little or no discharge from the wound, I applied cantharides to it, and to the back of the hand, which produced considerable inflammation, and in a short time, by the application of poultices, the wound discharged freely. Cantharides was likewise applied to the pit of the stomach, as the irritability of this organ had now become very great. Fowler's solution was discontinued, and solution of opium was given per anum, and the other medicines continued. The next day (Saturday) there appeared to be no very great change for the better, although the spasms rather abated, but the irritability of the stomach was so much increased, as to reject almost every thing received into it. The jaws continued to be firmly fixed, and the patient has not yet had sleep. Madeira wine was now given instead of brandy and water, and opium in solution continued externally. The spasms recur with less violence and frequency. The propriety of the cold bath occurred, and feeling extremely anxious for my patient, I met Mr. Dr. C. again in consultation at six in the evening, when it was concluded to use the cold affusion immediately. Two pails of cold ice water, in which salt had been dissolved, were poured over the naked body of the patient, and then he was immediately wrapped in warm blankets and put to bed. Perspiration soon commenced, and sleep immediately succeeded. In the course of about half an hour he awoke with the jaws so much relaxed as to enable him to speak distinctly. I now gave opium more sparingly, intending to repeat the cold affusion should the spasms return. I also gave pills of calomel every two hours, till free evacuations were procured, and then gave wine and brandy as the stomach would bear. He rested comfortably during the night—the progress of the disease appeared evidently checked, and hopes of recovery were now indulged. From this time convalescence was rapid, and his recovery under a mild course of tonicks was complete. *New England Journ. of Med. and Surg.*

Case of Inversio Uteri.—Mrs. ———, a slender, delicate woman, aged twenty-six, was taken in travail February 22d, 1822,

with her first child. After about twelve hours she was delivered, without any extraordinary difficulty, of a full grown healthy male child. The attending physician says he pulled gently at the cord; immediately the placenta pushed forward, protruded at the external orifice, and was followed by the uterus, completely inverted. The placenta still adhering, he separated it with the fingers, and returned the organ, as he supposed, into its proper place. The woman was tolerably easy through the night following, though considerable blood was discharged from the uterus. On Saturday, 23d, she was taken out of bed, when the uterus immediately protruded out of the body, followed by a copious discharge of blood. Dr. ——— was immediately called in, and pushed the protruded uterus within the vagina, supposing that this was all that was necessary to be done, or rather concluding he had returned the prolapsed part to its original situation. The loss of blood, at this time, was considerable, so much so as to produce syncope, from which she was gradually recovered by cordials, friction, and volatiles. A moderate discharge still continued to flow till about 12 o'clock at night, when the pulse began to sink, accompanied with fainting and great prostration of strength.

The account, thus far, I received from the physician in attendance. I was called Sunday 24th at 9 o'clock, A. M. and found the patient very low. Pulse at the wrist hardly perceptible, though she retained her reason, conversed, and expressed much satisfaction on my arrival, hoping relief would be certain. Upon examination, I found the uterus completely inverted, occupying the whole of the vagina, the neck reaching above the pubis. No urine had been passed since delivery. The catheter was introduced and drew off three pints of high-coloured urine, which gave considerable relief. The attending physician had made an ineffectual attempt to introduce the catheter. The patient expressed great desire that the part protruded should be returned to its proper situation; her friends were also urgent for the operation. I suggested a doubt of the practicability as well as of the expediency of an attempt, in so helpless a case; at the same time evinced a willingness to gratify their united and earnest desires, by making a trial. They still urged. She was placed on her back; the left hand was passed into the vagina, which grasped and covered about

two-thirds of the circumference of the tumour, the neck of the organ being pretty closely contracted. A gradual pressure was made and continued about ten minutes, which enabled me to bring the whole fundus into my hand. I then brought the three middle fingers to a cone, placed the ends against the fundus, the thumb and little finger at the same time embracing either side of the tumour. In this manner a gradual, but firm pressure was made and continued about five or six minutes, at which time the fundus passed through the neck, the latter contracting round the wrist. The hand was continued in the cavity about three minutes, when a gradual contraction brought the walls of the uterus into contact with the same, the latter being withdrawn, the parts remained stationary. She bore the operation with great fortitude, lay calm and free from pain about one hour. Short and laborious breathing soon after succeeded, and she died without a struggle at four o'clock, P. M. seven hours after my arrival. *Ib.*

Formation of flexible, elastick Tubes.—I have lately had occasion, in the practice of the arts, to make use in a modified manner, of the compound blow pipe of Hare, supplied with oxygen and hydrogen gases; and in doing so, have been compelled to seek for some material of which I could make a flexible elastic hose or tube, indispensable to my operations.

Leather in various ways was used without success. The intestine of the hog, and the bullock—in their natural state, answered a very good purpose, for a short time, but they soon cracked and exhibited fissures, through which the gasses escape very fast—and on being tanned with an infusion of sumac, became very porous, notwithstanding they were surcharged with oils, tallow, &c.

At last I imagined that caoutchouc, or India rubber, might be employed with success; and as I obtained it, I trust it may possibly be of some importance to some of your readers, to be made acquainted with the process, I pursued in its manufacture—the detail of which follows and is at your disposal.

I caused small iron wire to be coiled spirally around a cylindrical rod of iron, as close as it could be laid, of the length, in one instance of twelve feet. The extremities of this spiral

coil were then made fast to the rod, (after having been once loosened from it) in manner, such, that, in the subsequent operations, the convolutions of the wire should remain in contact with each other. Over this spiral coil was wound in a similar manner, a covering of tape, ferreting, or other fabrick, so as to completely invest it, and, in a process which is shortly to follow, to prevent the intrusion of the gum to be used, into the cavity of the spiral coil before mentioned.

The rubber is now taken, I mean such kind of it as is sold in the form of bottles, and cut into long, narrow strips, like carpet rags. This is best effected by cutting them originally into two equal parts, and then reducing them, as near as may be, into the shape of a circular plate, with a pair of sharp tailor's shears, which succeeds in such case much better than would be commonly imagined. These strips are wound over the covering of tape, or ferreting, above mentioned, in a spiral manner from one end of the coil to the other, and this, in my instance was twice repeated—care being taken to lay, as far as practicable, the fresh cut surfaces in contact with each other, drawing them so tightly as to cause them, from their elastick property, to stretch to two, three or four times, their ordinary length. When this was done, another covering of strong tape, (linen is to be preferred) was laid likewise spirally over, or around the same from end to end—and secured upon it, by very strong twine laid as closely as could be done, and drawn as tight as the material would permit. The rod of iron was next withdrawn—the recently formed hose was then so far bent into a circular form as to be received into a vessel of water in which it was boiled for an hour or two, when it was taken out, the external covering taken off, and the internal wire and tape withdrawn.

This latter operation, at first gave me some trouble, in consequence of the stiffness of the wire—but, in prepairing other tubes of the kind, this difficulty was overcome by annealing the wire previous to commencing operations.

In the course of my little practice in pursuit of this object, I found that if the hose so prepared, be, for any purpose subjected to a second boiling, it has the effect of reducing the size of the hose considerably, so that if this second boiling be even intended, though I know of no reason to desire it unless it be to unite

two pieces of hose together, this circumstance should be taken into the account.

I know very well that hose or tubes, of this material, made upon glass or metal rods, are stated to have been fabricated—yet as I was unable to succeed in that way in specimens exceeding four inches in length, I concluded, that where twice or thrice that number of feet are wanted, the method was impracticable, and therefore pursued the one I have detailed. It resulted in a hose perfectly elastick, as you may well conceive, and though not very elegant on its exterior, yet very light, and perfectly impervious to the gasses it conducts to the blow-pipe to which it is attaced. THOS. SKIDMORE.

[*American Jour. of Science and Arts.*]

IT gives us pleasure to lay before our readers the following letters and accompanying circular, believing that there are a great number who will be happy to perceive the respect with which a scientifick countryman is treated by foreigners of the highest reputation, and will be willing to assist in making the natural history of their country more perfectly known, by preserving and transmitting such specimens as they may have an opportunity of collecting.

[TRANSLATED.]

"*Paris, July 15th*, 1821.

"SIR,

"Our common friend the respectable and amiable Mr. Correa de Serra, has rendered me a new service in making me acquainted with you by the subjoined letter, which I take the liberty of forwarding to you. I dare not, as yet, add any thing to this letter but a copy of a circular which will clearly explain what I desire. If these requests be not troublesome, do me the honour to inform me, as I fear that I may seem importunate. I have the honour to be, Sir,

Your Ob't. Serv't.

A. BRONGNIART.

D. DRAKE, M. D."

[ORIGINAL.]

"*Paris, January 28th*, 1821.

"DEAR SIR AND FRIEND,

"Mr. Brogniart, of the Royal Academy of Sciences, a name well known to you for his first rate works on Geology,

Mineralogy, and Zoology, wishes to have a scientifick correspondent in the United States, on whose science and correctness he may rely. You know the high opinion I entertain of you in both these points of view; I am consequently very glad to put you in the way to do honour to your country and to yourself, by entering as an ally in the great scientifick confederation. I write this in Mr. Brongniart's cabinet, and he will take care of having this forwarded to you. The complication of business hindered me from writing you a farewell letter when I left the U. S.; but you see that I conserve every where the sentiments of friendship, esteem, and consideration, with which I am, most sincerely, yours,

JOSEPH CORREA DE SERRA.

DR. DRAKE."

[TRANSLATED.]

"CIRCULAR,

"*Relative to the manner of collecting, labelling, and conveying the specimens of Fossil organick remains and their accompanying rocks.*

"THE study of fossil organick remains, appears to be of very great importance, to arrive at a determination of the relative position of different soils, one of the principal objects of Geology.

"In order that we may better appreciate the value of this mode, it is necessary to multiply observations, endeavour to render them exact and precise, and particularly that they be made on a general plan.

"M. Brongniart has, for a long time, been occupied in researches of this kind. The essay which Mr. Cuvier and he have published on the Geology of the environs of Paris, gives an example of the aid which may be derived from this source.

"He has been employed, since that period, in applying this method to other soils which contain the remains of organized bodies; but he has need of much assistance, and he ventures to ask this, not only from Naturalists, but from all persons who are interested in the Sciences. He wishes to give, by the following directions, to persons the least acquainted with fossils, an opportunity to exercise their good will, usefully.

"1st. To collect all fossil organick remains which can be procured; especially *impressions* and *fragments of recognizable*

vegetables, from *secondary* soils, beds of lignites, and other soils; *shells*, crustaceG, *madrepores*, fishes, &c.

"It is not necessary that these specimens should be either large or perfectly whole; but it is requisite that they should be sufficiently *characterized* to be known. It is useless to send large pieces of insignificant substances, which are only remarkable for their size, such as large ammonites, madrepores, and great fragments of petrified wood: pieces of the latter, and small individuals of the former, often are sufficient. The collection of casts from the interior of shells, may also be avoided, because they are almost always indeterminable.

"2d. Petrifactions insulated and detached from their rocks, are the most convenient for the determination of the species; but, when they cannot be separated, they may be sent attached to the rock: it is sufficient that a piece remains large enough to render them recognizable.

"Those *shells* should be selected in preference, of which the mouth or hinges may be seen; of the *madrepores* such are to be chosen as have the stars on the surface well marked; of the vegetables such as have the leaves well expanded.

"3d. It is desirable to have on the objects collected, the following notices, or, at least, some of them.

"1st. The *exact* locality of the object; which is the principal circumstance and the easiest to ascertain.

"2d. The nature of the soil in which it is found, and a specimen of the bed; or, at least, a specimen of the rock that contains it.—It is well that this rock should show the remains of petrifactions which are found in the stratum from which it has been removed.

"3d. The nature of the earth, of which this stratum or rock made part; and a specimen of as many of the superior and inferior beds as can be procured, in designating the order of superposition of these strata.

"4th. It is important to mark with the same sign all the petrifactions found *very evidently* in the same bed, or, at least, in the same soil. The specimens should be nearly three inches square on one side, at most, and about an inch and a half thick.

"5th. It is equally important not to mix together petrifactions found in different soils, or in different beds of the same soil; or, if they be packed together, they should be distinguished by numbers, marks or labels.

"When all the preceding observations cannot be made, the first of them will be sufficient.

"It is not necessary to be acquainted with the petrifactions to collect and render them useful; it is needless to be troubled to determine them individually, or to fear sending objects not very remarkable or already known; a part of the preceding remarks, joined to the commonest petrifactions, will always make them useful. The most essential part is, not to mix those together which are found separated, and not to separate such as are found united in the same bed.

"This may be easily prevented, by marking with a number, or letter, or any other sign, a soil or a bed, and marking with the same character all the petrifactions that are *evidently* found together.

"The labels marking the locality and situation, may be placed in the paper containing the specimens; or give to each specimen a number, referring to an explanatory catalogue.

"It is very desirable to have the labels or numbers attached to the specimens in arranging them, and the surest of all methods, is to write on the specimen itself—1st. The place where it was found; 2d. The number under which it is designated in the historical notes requested above.

"If the collector has not time to make as many numbers or labels as there are specimens, it will be sufficient to place in the same box or pacquet, all the petrifactions of the same bed, and to designate them by a general label.

"It is necessary to enclose the shells and other frail specimens in separate boxes, and to envelope each specimen in a separate paper.

"M. Brongniart cannot suffer himself to make such requests except under the express condition that a bill of all the expense occasioned by packing and transporting the specimens, shall accompany the letter announcing their transmission.

"Objects that are destined for him, should be sent by the ordinary conveyances to the following address:

"Mr. A. BRONGNIART,

"*Membre de l'Academie Royale des Sciences; Ingenieur des mines, etc. Rue Saint Dominique faubourg Saint Germain, No.* 71, *PARIS.*"

Two singular cases of the effects of nitrous oxide, or exhilarating gas.—For several years the medical class, and the two senior academical classes in Yale Colege, while attending the chemical lectures, have been in the habit (each class by itself) of preparing for themselves, and administering to their respective members, the nitrous oxide, or exhilirating gas.

The relations of the effects of this gas have been so frequent and similar, that they have become trite; there were, however, two cases during the last season, which appear worthy of being published.

Case 1.

A. B. a member of the junior class, about 19 years old, is a person of a sanguine temperament, of a cheerful turn of mind; and possessed the most perfect health. He breathed the gas which was prepared, and administered in the usual dose, and manner. Immediately, his feelings were uncommonly elevated, so that (as he expressed it) he found it "impossible to refrain from dancing and shouting." Indeed to such a degree was he excited, that he was thrown into a frightful delirium, and his exertions became so violent, that after a while he sunk to the earth, exhausted, and there remained, until having, by quiet, in some degree recovered his strength. he again arose, only to renew the most convulsive muscular efforts, and the most piercing screams and cries, within a few moments, overpowered by the intensity of the paroxism, he again fell to the ground, apparently senseless, and panting vehemently. The long continuance, and violence of the affection, alarmed his companions, and they ran for professional assistance. They were however, encouraged by the person to whom they applied, to hope that he would come out of his trance without injury, but for the space of two hours these symptoms continued; he was perfectly unconscious of what he was *doing*, and was in every respect, like a maniac; he states howeve, that *his feelings* vibrated between perfect happiness, and the most consummate misery.—In the course of the afternoon, and after the first violent effects had subsided, he was compelled to lie down two or three times, from excesive fatigue, although he was immediately aroused on any one's entering the room. The effects remained in a degree, for three or four days, accompanied by hoarseness, which he attributed to the exertion made while under the immediate influence of the gas.

This case should produce a degree of caution, especially in persons of sanguine temperament, whom, much more frequently than others, have been painfully and even alarmingly afflicted.

Case 2.

C. D. a member of the seignor class, is a man of mature age, and a grave and a respectable character. For nearly two years previous to his taking the gas, his health had been very delicate, and his mind frequently gloomy and depressed. This was peculiarly the case for a few days immediately preceding that time; and his general state of health was such, that he was obliged, almost entirely, to discontinue his studies; and was about to have recourse to medical assistance. In this state of bodily and mental debility, he inspired about three quarts of the nitrous oxide. The consequences were, an astonishing invigoration of his whole system, and the most exquisite perception of delight. These were manifested by an uncommon disposition for pleasantry and mirth, and by extraordinary muscular power. The effect of the gas was felt without diminution for at least thirty hours, and in a greater or less degree, for more than week.

But the most remarkable effect was that *upon the organs of taste.* Antecedently to taking the gas, he exhibited no peculiar choice in the articles of food, but immediately subsequent to that event, he *manifested a taste only for such things as were sweet,* and for several days *ate nothing but sweet cake.* Indeed, this singular taste was carried to such excess, that he *used sugar and molasses not only upon his bread and butter and lighter food, but upon his meat and vegetables.* This he continues to do even at the present time, and although nearly eight weeks have elapsed since he inspired the gas, he is still found *pouring molasses over beef, pork, poultry, potatoes, cabbage, or whatever animal, or vegetable food is placed before him.*

His health and spirits, since that time have been uniformly good, and he attributes the restoration of his strength, and mental energy to the influence of the nitrous oxide. He is entirely regular in his mind, and now experiences no uncommon exhiliration, but is habitually cheerful, while before, he was habitually grave, and even, to a degree, gloomy.

American Jour. of Sciences and Arts.

FROM FOREIGN JOURNALS.

"The way to preserve good Health, invigorate a delicate Constitution, and attain an advanced Age: together with a Treatise on Domestick Medicine; pointing out, in plain language, the Nature and Cure of all Diseases, that occur in all Climates; with suitable Prescriptions in English, &c. &c. &c. ! ! ! By Robert Thomas, M. D. Salisbury, 1822."

Dr. Thomas is as well known to the indolent part of the Profession, as Mother Bunch's *fairy tales* to the lisping inmates of the nursery. Not unlike that more innocent production, the present is intended to operate, although in a much more serious manner, upon the imagination of those 'children of larger growth,' who may honour the author by a perusal of his work. The fact is, that Dr. Thomas commenced his literary career by publishing a 'reading made easy' book, to the juniour members of the Profession, who were anxious of having both the time and trouble of becoming initiated as much abridged as possible. His views extended with his success, and his earlier work gradually lapsed into a manual for country curates, and for every body who had curiosity enough to desire its perusal, or were unfortunate enough to be seized with mental derangement of that nature which eagerly longed after that forbidden fruit,—the knowledge of the nature of their own ailments, whether real or imagined. Still Dr. Thomas could not rest contented with his extended sphere of *usefulness;* and to complete what the former was not calculated altogether to effect, he produces a work that promises to enlighten mankind, upon a subject the most interesting to all—the benefit of self.

Lond. Med. Repository.

Mr. Lizars' Cure of Neuralgia [Tic douloureux] by Operation.—In presence of Mr. Allan, surgeon to the Infirmary, and Dr. Grant, house-surgeon to the same establishment, and several of Mr. Allan's and my own pupils, I divided the nerve as it emerges from the mental foramen of the inferior maxillary bone, by cutting the lining membrane of the mouth from the gums, precisely below the

second molar tooth, an invariable guide to the situation of the foramen.*

The nerve, as it runs up to expand on the cheek, (for in this instance it had not yet branched into its twigs,) being quite evident, I cut away a portion about the fourth of an inch. When the nerve was cut, he gave a leap, a sure criterion that it was divided. From the moment of division, he was no longer molested with pain. The wound healed in a day or two, and he returned to the country, where he resumed his occupation as a labourer, and enjoyed excellent health, until one morning in December last he was suddenly awaked with the same torturing pains. Thus he had been freed from the disease for the space of twelve months.

After enduring these excruciating tortures day and night for five weeks, and hourly becoming worse, the paroxysms recurring at shorter intervals, he came to town, and called on me on the 3d February last. The symptoms were nearly the same as formerly. They returned at shorter intervals, scarcely five minutes intervening between the paroxysms. When I again proposed the cautery, he instantly entreated me to cut the nerve, for he had no faith in any thing but the knife; and, as the last operation was so trifling, compared with the pain he then and now endured, I appointed the next day.

4th February—When, in presence of Dr. Duncan, junior, Professor of Materia Medica, Mr. Allan, surgeon to the Infirmary, Dr. Campbell, lecturer on Midwifery, Dr. Milligan and Dr. Moore, I made an incision inside of the mouth, in a line with the inferior maxillary bone, precisely beneath the second molar tooth, separating the lining membrane of the mouth from the gums. My intention was to lay bare the nerve, and remove a piece as formerly; but in this I was disappointed by the old cicatrix, which, by its thickening, had obscured the nerve, where I presumed it had formed a junction. The mental foramen could be distinctly felt; and the application of the finger or knife excited severe twitchings. I therefore cut across the nervous matter, which relieved him, and quieted the convulsive actions of the muscles. To endeavour to prevent a reunion of

* A straight line, drawn from the second molar tooth of the inferior maxilla to the base of the bone, will always indicate the mental foramen: and a straight line, drawn from the second molar tooth of the superior maxilla to the margin of the orbit, will invariably bisect the infra-orbitary foramen.

the nerve, I inserted a small piece of dry sponge into the wound, to excite suppuration and gradual granulation.

5th.—Had passed a better night than for the last ten days, but felt uneasy from the sponge; I therefore removed the sponge and inserted a small piece of lint.

6th.—The pain had been equally severe all night as before the operation. I therefore prevailed on him to allow the actual cautery to be applied to the wound; and I endeavoured to scar the nerve at the foramen, as well as the cut twigs. The next day, as he had felt no relief from the cautery, I scarified all round the foramen, and again cauterized. I dreaded exfoliation of the bone; which, however, I find was intentionally done by André in one case, with perfect success. He passed a much better night compared with the preceding, and accordingly next day I repeated the cautery to the same extent. In this way of applying the cautery, which always mitigated his sufferings, I continued till the 18th, when, at the suggestion of Dr. Duncan and Mr. Allan, who always met me in consultation, and to whom I consider myself under many obligations for their valuable advice, I cut the inferior twig of the facial nerve, which communicates with the mental. I made a small perpendicular incision a little before and parallel to the ramus of the inferior maxillary bone, where the nerve emerges out of the parotid gland over the masseter muscle. I then divided the nerve, and removed a piece about the fourth of an inch.

This operation so far lessened his sufferings, that he experienced a better night than since the last return of the complaint; and the following day was passed with intervals of two hours free of a paroxysm. In two days after, however, the pains returned as severe as ever. It was therefore deemed advisable to extract the second molar tooth, the point where the pain commenced, and cauterize down to the canal of the nerve. This was accordingly done; but no relief was experienced, excepting for a short while after the application of the cautery. The same was repeated for three days successively, but all to no purpose. He continued as much tortured as ever. It was truly heart-rending to witness his sufferings.

On the 25th, I proposed to the gentleman who had met me before in consultation, to cut first the inferior maxillary nerve as it enters the osseous canal, then the facial at its exit from

the stylo-mastoid foramen, and, thirdly, the infra-orbitrary, independent of what is urged against the two first operations by Dr. Haighton and Mr. Swan, rather than suffer this poor wretch to endure such misery.

On examining the mouth, great pain was given by touching the coronoid process of the lower jaw bone, as well as the gum all along the right side.

The next day, the 26th, I tried to divide the nerve, by introducing, from the inside of the mouth, a sharp-pointed curved bistoury along the inside of the coronoid process of the inferior maxillary bone, between it and the pterygoideus internus muscle to the foramen; then lateralizing the instrument outwards, and cutting towards me, with the expectation of hooking the nerve. In this I experienced considerable difficulty, from the superior maxilla shutting up, as it were, the space. He felt, at one time, excessive pain, indicating the division of the nerve. He was easier during the afternoon, but passed nearly as bad a night as formerly. The day following, the 27th, the pain was confined to the seat of the extracted tooth; this, therefore, was cauterized. As the operation of yesterday had caused considerable tumefaction, so as to prevent any examination of the wound, we put him on a course of carbonate of iron, which he took to the extent of two ounces daily. This he continued to the 4th of March, without receiving the least benefit. To-day I prevailed on him to allow the application of the moxa, which was accordingly done; but he could scarcely suffer it.

15th March.—He was relieved a little during the afternoon of the day the moxa was applied; but the following day his sufferings were as severe as ever. The tumefaction of the muscles in the neighbourhood of the wound last inflicted, having now subsided, and the sore formed by the moxa, healed, I again attempted to divide the nerve as it enters the foramen; but in place of the bistoury, I made first a perpendicular incision with a scalpel close to the coronoid process, and then introduced a round shaped gum lancet between the process and the internal pterygoid muscle, and scarified the bone at the foramen. When the lancet reached the seat of the nerve, the pain he experienced was intolerable; and it was with difficulty he could sit till I cut the nerve completely. From this moment

there was a sudden and satisfactory termination to all his sufferings, similar to what had occurred after the first operation in December, 1819; and from this time he has continued well. The other day I saw him toiling in the field with apparently great enjoyment of life. [*Edinburgh Med. and Surg. Journ.*

Cases of Tic Douloureux successfully treated. By BENJAMIN HUTCHINSON, Member of the Royal College of Surgeons of London.

In our account of the work of Mr. Swan, we had occasion to make some animadversions on the treatment of *tic douloureux*, and the comparative advantages of dividing the nerve, or treating the complaint by remedies which should operate on the constitution. There are, indeed, very few diseases, in the management of which it is of more importance to determine whether it is of a local nature, or depends on causes of a more general description. It avails not to argue, that the operation is, in most situations, so trifling and so easy, that it can scarcely require much reflection or delay. Whatever it may be to the surgeon, it is a matter of some consequence to the patient to be relieved, without having resource to a remedy which is always painful, and has been found in many instances to be ineffectual.

When the disease began to attract the attention of medical men, it was considered a local affection entirely, both in its pathological nature, and in its origin; and the local treatment was, therefore, the most rational, and appeared in general to answer the expectations with which they were employed. The frequency, however, with which the operation has failed to produce even a temporary cure, has led many practical men to doubt its propriety in any circumstances, and must certainly shake the faith of many who deemed it the most rational and certain benefit which the science of anatomy ever conferred on the practice of surgery.

Our readers are perhaps aware, that this change in treatment has not been effected suddenly, or at one step; for in addition to many remedies which act on the alimentary canal, or the circulation, there were employed of late years not a few, the ambiguous operation of which has been conveniently

expressed by saying that they exerted an alternate influence. Of this kind, perhaps, are the mercurial and arsenical remedies for tic douloureux. We know not to what class to refer the remedy proposed by Mr. Hutchinson, and stated by him, on very strong testimony, to afford a most certain, efficacious, and permanent cure. The remedy which our author, from experience of considerable extent, proposes, is the carbonate of Iron, prepared from the sulphate by precipitation, by means of carbonate of soda. While he admits that this is not a new or unknwn medicine, he contends that its exhibition in this disease is peculiar to himself; and especially, that it has never been given in doses sufficiently large to produce a great and material effect on the constitution. The doses employed by our author are half a drachm, or four scruples, two or three times daily,—In some of his cases, he commenced, with half a drachm three times daily, and increased it to the quantity of four scruples twice a day; a dose which, our author gives us to understand, may be continued for several weeks, in the course of which it rarely happens that the disease is not completely extirpated. He further remarks, that this mode of exhibiting the precipitated carbonate ought not to be restricted to *tic douloureux*, but should be employed in every form of disease in which iron is to be deemed beneficial.

We cannot say that we have much faith in specific medicines in any disease, nor perhaps would we place much reliance on any one mode of treatment, to the exclusion of all others; and, while we are willing to believe that Mr. Hutchinson's carbonate of iron is a most powerful and efficacious medicine in several of the forms of *tic douloureux*, yet we must not be understood to consider it in the light of a never-failing anti-neuralgic agent. To us, indeed, it appears now almost certain, either that there are varieties of the disease which demand different modes of curative management; or that, at different periods and stages of its progress, the pathological state of the nerve which gives rise to the neuralgic symptoms, is so different, that it does not at all times admit the administration of the same remedies with effect. While, therefore, we sincerely recommend the labours of Mr. Hutchinson to the serious attention of our brethren, we must not conclude this brief notice without observing, that it is requisite to attend to the collateral circumstances in the

health and constitution of the patient at the moment; that no mode of treatment can be planned, and no medicine exhibited, without considering the age, constitution, and habits of the individual,—without discovering, at least in some degree, whether the malady depends on general or local causes, and on which kind of each it depends; that, in some instances, neither antiphlogistic measures alone, nor evacuating, nor tonick, nor alterative remedies, will effect a cure; that calomel, arsenical solution, carbonate of iron, or even the operation, may be tried without decided benefit, until some unseen change gradually in the part affected, or in the system at large, and then either enable the remedy to effect the rest, or probably place the parts concerned in a situation favourable to the recovery of their original action.

Edinburgh Med. and Surg. Jour.

Carbonate of Iron in Tic Douloureux.—Mr. Richmond, member of the Royal College of Surgeons, relates a case of *Tic Douloureux*, which yielded to the use of carbonate of iron, after a variety of other remedies had been tried in vain. "Having perused Mr. B. Hutchinson's pamphlet," says he, "and witnessed the beneficial effects of his practice in Tic Douloureux, I again visited the patient, and found her agonies in all their former violence. She was advised to try the carbonate of iron, one drachm of which she took three times a day. On having taken two dozen of the powders, she experienced very great amendment, but exclaimed that I had been salivating her: indeed the iron, according to her account, had produced considderable ptyalism;* but, from its having subsided within a few says after she ceased to take the powders, during which period I did not see her, I am unable to form any judgment of its extent. I urged her not to regard the trifling inconvenience of a sore mouth, but to persevere in the use of the medicine; which she assured me she would most gladly do, as her excruciating torments had been so very considerably relieved. She further expressed great comfort in the improvement of her tongue and mouth, which were foul and unpleasant before she took the iron; and, though it occasioned some sense of weight and uneasiness in the stomach, her appetite and bodily strength

* This effect of iron is unusual, but will sometimes occur: I believe that Mr. Hutchinson has witnessed a similar occurrence two or three times.

had very much increased. She has regularly continued the medicine until last week, when the pain had totally ceased, and has not recurred, to the present time."

Med. and Phys. Journal.

On the Nerves; giving an account of some experiments on their structure and functions, which lead to a new arrangement of the system. By CHARLES BELL, Esq. Phil. Trans. Part. II. for 1821.

The object of Mr. Bell's researches, detailed in this paper, is to account for the complication of the nervous system, to demonstrate its numerous plexuses, and to unravel the intricacy and apparent confusion which the distribution of the nerves has given rise to.

The difficulties connected with this subject will only be increased as long as the nerves are supposed to proceed from one great centre, and to have the same structure and functions; to be all sensible, and all of them convey what has been vaguely called nervous power.

In carefully examining the nerves in the human body, and comparing them with those of other animals, Mr. Bell was led to observe a decided coincidence between the number of organs, the compound nature of their functions, and the number of nerves transmitted to them. An organ which possesses only one property, is found to have but one nerve, however exquisite the sense or action may be; but if two nerves, coming from a different source, are sent to one part, this is a sign that such an organ or part, performs a double function. Two or more nerves going to one organ, do not produce a mere accumulation of nervous power, but impart distinct faculties to the organ, in proportion to the number of nerves which it receives. In animals, for example, which do not breathe, the mouth having only one function to perform, is supplied with one nerve only. If the throat has no complexity of organization and function, it has no variety of nerves; but in exposing the nerves of the throat, tongue, and palate, in the human subject, we shall find the branches of five different trunks of nerves; a circumstance which appears unaccountable till we consider the multiplied offices of the mouth in man,—that it is a pneumatic as much as a manducatory organ: the organ of voice and of speech, as well as of taste and exquisite feeling.

The nerves of all animals may, therefore, be divided into two classes: the one simple and uniform, common to all animals, from the worm upwards to man, and supplying those parts which are necessary to life and general motion: the other irregular and complex, added to the first class and corresponding to the number and complexity of the organs which we find superadded as the animal advances in the scale of being.

In those animals endowed with mere sensation and locomotion, the first class constitutes the whole of the nervous system, and consists of two cords, running in the length of the body, with branches going off laterally to the several divisions of the frame. There is the same system of nerves in the human body, with the addition, however, of other nerves belonging to the second class, corresponding to the complexity of the organization in man. The spinal nerves, the sub-occipital, and the fifth pair, or trigeminus, constitute this original or symmetrical system. All the nerves of this class agree in these essential circumstances:—they have all a double origin,—they have all ganglia on one of their roots,—they go out laterally to certain divisions of the body,—they are all muscular nerves presiding over the voluntary muscular motions: are exquisitely sensible, and the source of sensibility; and are universally distributed over the body.

The nerves of the second class, as enumerated by Mr. Bell, are the third, the fourth, and the sixth pairs, the seventh, the eighth, the ninth, the glasso-pharyngeal, the accessary of Willis, and the external respiratory nerve. They are distinguished by a simple faciculus or small root; they are imperfect in their origin, and irregular in their distribution, and deficient in that symmetry which characterizes the first class. All these nerves are superadded to the original class, and correspond to the number and complication of the superadded organs.

The experiments which are brought forward in the present paper in support of these views of the nature and functions of the nerves, are hitherto confined to the nerves of respiration, which, according to Mr. Bell, form a system of great extent, *comprehending all the nerves which serve to combine the muscles, employed in the art of breathing and speaking.*

When we view the phenomena of ordinary respiration, of laborious breathing, and of the various modifications of this

action,—coughing, sneezing, speaking, and singing,—we must admit that the number of muscles employed in the act of respiration is immense. Not only the diaphragm and intercostals are excited, but the muscles of the shoulders, the throat, the mouth, and the nostrils, keep time with the motions of the chest. Mr. Bell, therefore, conceives that there is no impropriety in speaking of the respiratory nerve of the face, of the neck, and of the shoulder. And as the muscles of the face in man, and in many animals, receive two distinct pairs of nerves, he considers them as affording a good opportunity for showing the results of dividing one of these nerves, and illustrating the doctrine he has advanced.

The nerves of the face are, the *trigeminus*, or fifth pair of Willis, and the *portio dura* of the seventh, which he calls the *respiratory nerve of the face*. To ascertain and demonstrate the respective actions of these two sets of nerves, Mr. Bell had recourse to the following experiments:—

1. An ass was thrown, and its nostrils confined for a few seconds, so as to make it pant and dilate the nostrils forcibly; the *portio dura* was then divided on one side of the head, when immediately the motion of the nostril of that side ceased, while the other nostril continued to expand and contract in unison with the motion of the chest. On the division of the nerve, the animal gave no sign of pain, and on being untied, and corn and hay presented to him, he ate without the slightest impediment.

2. In another ass, the superior maxillary branch of the *fifth* pair was exposed. Touching this nerve gave acute pain; but on being divided, no change took place in the motion of the nostrils; the cartilages continued to expand regularly in time with the other parts which combine in the act of respiration, but the side of the lip was observed to hang low, and it was dragged to the other side. The same branch of the fifth was then divided on the opposite side, and the animal let loose; but he could no longer pick up his corn; the power of elevating and projecting the lip, as in gathering the food, was lost. To open the lips, the animal pressed the mouth against the ground, and at length licked up the oats with his tongue.

The influence of the portio dura, or respiratory nerve of the face was further demonstrated, when the animal was killed, (which was done by bleeding,) by the negation of its powers on

the side of the face where it was cut. It is well known that when an animal dies from loss of blood, the respiratory organs are thrown into powerful convulsive actions, which are not confined to the immediate muscles of respiration, but to those at a distance which sympathize with them,—the muscles of the mouth, nostrils, and eye-lids, and all the side of the face being in a violent state of spasm. In the ass where the portio dura was cut, the most remarkable contrast was exhibited on the two sides of the face; for while one side was in universal and powerful contraction, the other, where the nerve was divided, remained perfectly placid. When carbonate of ammonia was put to the nostrils of the ass, whose respiratory nerve had been cut, that side of the nose and face where the nerves were entire, was curled up with the peculiar expression of sneezing: while, on the other side, where the nerve was divided, the face remained quite relaxed, although the branches of the fifth pair and sympathetick were entire.

From the result of these experiments it is concluded, that the portia dura of the seventh, is the respiratory nerve of the face; and that the unison of action existing between the muscle of the eye, nose, face, throat, and diaphragm, in the actions of sneezing, coughing, &c. is effected solely through this nerve, and not, as has been heretofore supposed, through the great sympathetick.

These experiments and a variety of facts detailed in the paper, which we are sorry our limits prevent us from stating, likewise prove, that the portio dura, or respiratory nerve of the face, is also the grand nerve of expression, or indications of passion, while the brenches of the fifth pair going to the face, are the source of sensibility only.

At the close of this paper Mr. Bell proceeds to notice some of the practical conclusions to which this investigation is calculated to lead. The inference that the two sets of nerves distributed to the face have distinct functions, must of itself prove useful both to the surgeon and the physician. To the surgeon it must be useful in performing operations on the face, as well as in observing the symptoms of disease. The physician will be better able to distinguish between the paralysis which proceeds from the brain, and that partial affection of the muscles of the face, when, from a less alarming cause, they have lost the controlling influence of the respiratory nerve.

We have already extended our notice of this interesting paper beyond our usual limits, but before we take leave of the the subject, we must notice one more of the author's practical inferences, considering it peculiarly useful in forming our prognosis in affections of the lungs in infants and children, who are not capable of expressing their feelings as well as in the cases mentioned by the author.

'There are conditions of the lungs, when the patient is in great danger, and yet the inflammation is not marked by the usual signs of pain and difficult motion of the chest. We shall see nothing of the twitching of those muscles of the face, which are animated by the respiratory nerve. We see a certain unusual dilatation of the nostrils, and a constrained motion of the lips, which with the change of voice, is just sufficient to give alarms and indicate the patient's condition. This is a state of the lungs very often produced after severe accidents, as gunshot wounds, and after great surgical operations.'

Lond. Med. Intel.

The Oil of Turpentine rendered more palatable. Dr. Nimmo employs the following method to purify the oil of turpentine, for medicinal use, 'without diminishing its efficacy, but greatly lessening its disagreeable taste, and its injurious effects upon the kidneys.' To eight parts of the oil, add one part of the strongest alcohol, and let them be well agitated; in a few minutes a separation takes place; the oil, unless very impure, falls to the bottom, and the alcohol, having dissolved the impurities, floats at the top. Pour off the alcoholick portion, add an equal quantity of alcohol as before, agitate and separate the liquids. If this be repeated three or four times, the oil becomes nearly tasteless, almost without smell, and when a portion of it is evaporated, it leaves no residue. It is necessary to remark, that, pure as the oil may be rendered, it speedily undergoes alteration, and returns to its original stale of greater or less impurity.

Lond. Med. Repository.

Use of the Piper Cubeba in Leucorrhœa.—D. James Orr, of Edinburgh, has communicated to Dr. Duncan, jun. four cases of leucorrhœa cured by cubebs. In the first case, the patient had laboured under the disease for seven months. In the se-

cond, the complaint had lasted nearly eight years; in the third, it was of two years standing; and in the fourth, the discharge had resisted the use of several remedies for six months. In the first three cases, the disease succeeded to abortion. The pepper was administered either in water or milk, or made into an electuary with treacle. The dose was from one drachm and a half and upwards, three times a day, but never exceeded three drachms.

Physiology.—Dr. Magendie, of Paris, has commenced the publication of a Quarterly Journal, entitled "Journal de Physiologe experimentale." The first three numbers have reached us, in which we find several interesting memoirs from the pen of that ingenious and indefatigable physiologist. In a short memoir on the structure of the Lungs in men, contained in the first number, the following facts are stated: 1st. That the greater part of the organic tissues contain so great a number of blood vessels, that they appear to be entirely formed of them. We may consider this fact as the actual limit of the anatomy of structure. 2. That the best mode of studying the structure of the pulmonary organ is to inflate it partially by the orifice of one of the bronchial tubes, place a ligature so as to prevent the escape of the air, and then to let it dry in the open air, or before a fire. It is then transparent, and may easily be cut by a sharp instrument into thin slices. 3d. If one of them be held between the eye and a light, the pulmonary cells may be easily distinguished. These cells assume no regular form, appear to have no membranous parietes, but to consist entirely of the ultimate divisions of the pulmonary artery, the radicules of the pulmonary veins and of the multiplied anastomoses of all these vessels. 4th. That the cells of the lungs increase in size and diminish in number, as life advances. 5th. The specifick gravity of the lungs is accordingly so diminished by age, that the lungs of an old man weighed fourteen times less than an equal volume of the lungs of a child. 6th. This increase of the cells is so regular, that in general the age of the individual may be assigned very nearly by inspection of the lungs. Disease, however, modifies the dimensions of the cells. Those who have coughed before death, have them generally larger. 7th. If, in individuals of advanced age, we find one side of the

lungs diseased, the healthy lobe, inflated and dried, resembles a light foam. 8th. Old people accordingly consume less oxygen, have less animal heat, and are less able to resist cold than the young. 9th. The first indications of Phthisis of the most common or tuberculous kind, consists in the deposition of a greyish yellow matter in one or more of the cells of the lungs. This matter is sometimes moveable, and may probably be expelled, but it frequently increases, adheres to the small vessels, gradually obliterates them, and the whole lobe becomes tuberculous, or formed of this greyish yellow matter. 10th. Numerous as have been the bodies of Phthsical patients, which Dr. Magendie has opened, he has never seen in the cells, those little pearly grains, which, according to certain authors, are the first germs of Phthisis, but on the contrary, the matter which first forms is that which has been named tuberculous, and this matter has the appearance of being a secretion by the parietes of the small pulmonary blood vessels. 11th. Admitting this to be true, the commencement of Phthisis is only an alteration in the habitual secretion of the vascular tissue of the lungs, and this is one of the reasons which induced the author to employ sedatives, and particularly the hydro-cyanick-acid in the treatment of the two first stages of Phthisis. He has ever since had occasion to congratulate himself on this practice.

American Journal of Science and Arts.

Pavia—*Remedy against Hydrophobia.*—New experiments prove the efficacy of chlorine in the treatment of Hydrophobia. Dr. Previsali has prescribed it with success, in several cases in which the symptoms of that frightful malady had already manifested themselves. He administers it in the form of a drink in the dose of a gros or a gros and a half per day, in citron water, or citron syrup. *Rev. Enc.*

On Absorption from the Lungs.—The following are the results of an extensive series of experiments performed by Professor Mayer, of Berne, with regard to the absorption of fluids from the lungs:—

I have been engaged for many years in experiments, which prove the absorption from the lungs. In 1812, I publishe some of them; since that time, I have made eighty experiments

more on the same subject: I performed analagous experiments on the absorption from the intestines, and I found that it is much less than from the lungs. I made these experiments on various animals, viz. on rabits, dogs, cats, goats, hedge-hogs, &c. I performed them with different coloured fluids; with the infusion of tumerick, of rhubarb, of saffron, of indigo, of madder, &c. I frequently made use of a mixture of indigo, of saffron, and of water. Lastly, I employed solutions of the prussiate of potass, of nitre, of alum, of acetate of lead, muriate of iron, oxide of arsenick, oils, &c. &c. The following are the summary results of these experiments:

1st. Animals support a considerable quantity of liquid injected into the lungs without experiencing mortal symptoms from them. Rabbits can support a dose of four ounces and a half of water in 24 hours. But these injections should be performed by an opening made in the trachea; for if we inject these fluids by the larynx, they excite the most severe symptoms of suffocation, and the animal soon sinks under it. The suspension of respiration during this irritation of the muscles of the larynx by the injection, is the only cause of death.

2d. The symptoms of suffocation which arise from injections, are not serious when we inject pure water; but they become so when we take thick fluids, for example, oil, which obstructs the aerial passages; or some chemical solutions, which, destroying the parenchyma of the lungs, prevent the oxydation of the blood, and produce extravasations of blood, and inflammation in the lobes of the lungs.

3d. The fluids and solutions injected into the lungs are absorbed, more or less quickly, according to their nature, and their degree of concentration.

4th. This absorption is in general very great, but less in young and newly born animals than in adults.

5th. Absorption takes place by the pulmonary veins, for it has occurred in the space of three minutes: we find in the blood the fluids ejected, before we perceive them in the chyle: we find them in the left auricle and ventricle of the heart, long before we can see the least trace of them in the right auricle Lastly, absorption is carried on even although we tie the thoracick duct.

6th. Absorption is likewise performed by the lymphatick vessels, but more slowly.

7th. The veins of the stomach and intestines also absorb, but in much smaller quantities.

8th. We can demonstrate in the blood the existence of fluids absorbed by the veins. It is easy to discover there the prussiate of potass, the muriate of iron, arsenick, &c. We can trace the prussiate of potass injected into the lungs, first in the arterial blood of the heart and arteries, then, if we continue the injection, in the venous blood. The sulphate or the muriate of iron, mixed with the blood, produces a green or blue precipitate.

9th. We find these fluids in abundance in the urine in the bladder, and in that in the kidneys. The prussiate of potass can be discovered in it seven minutes after the injection.

10th. The prussiate of potass is likewise deposited, and even in considerable quantity, in the serum of the pericardium, of the pleura, of the peritonæum; in the synovia, under the skin, and in the milk.

11th. When we have injected prussiate of potass, we can discover this substance after some hours, not only in the fluids, but also in many of the solids. Several of these parts then became green or blue with the muriate of iron, viz. the cellular tissue under the skin, and in the whole body, the fat, the serous and fibrous membranes. We can tinge, in green and in blue, by the solutions of iron, all the aponeuroses of the muscles, tendons, and the lateral and interior ligaments of articulations; for example, the circular ligament in the ileo-femoral articulation; the crucial ligaments in the femoro-tibial articulation. We find the other parts of the fibrous system in the same state, namely, the dura mater, the periosteum, and the pericardium, &c.

12th. The membranes of arteries and veins, even the valves of the heart, can be entirely coloured blue. The mitral valve in the left ventricle alone becomes blue, when we do not continue the injection long enough.

13th. The parenchyma of the liver and spleen cannot be coloured blue, but sometimes the cellular tissue around their great vessels. The lungs, the heart, and the kidneys, can be coloured blue.

14th. The secretory glands, namely, the salivary gland, the pancreas, the mammæ, become blue.

15th. Neither the substance of the bones nor the marrow becomes blue.

16th. The substance of the muscles, and that of the nerves of the brain, and of the spinal marrow, do not change their colour, by soaking with the muriate of iron. The organs appear to exert a repulsive and exclusive force, on the contact of fluids foreign to their nutrition. We may conclude from this that the opinions of many physiologists, who say that poisons act mortally, when they are applied to parts of the nervous system, are not well founded, and are devoid of direct proosf.

17th. These experiments, which may throw some light on secretion, the reproduction and nourishment of bodies, have also taught me the passage of liquids from the mother to the fœtus. The experiments with the prussiate of potass succeeded very well. We can discover this substance in the water of the amnion, in that of chorion, and of the umbilical vesicle, in the liquid of the stomach, in many solid parts of the fœtus, for example, in the kidneys, in the stomach, &c. as also in the placenta. When we lay a fœtus, to the mother of which we have given prussiate of potass, into a mixture of the spirit of wine and muriate of iron, we perceive it become blue coloured. Thus we acquire the most certain proof of the passage of fluid from the mother to the fœtus, a proof that we have vainly sought for till now in the history of physiology. The fluids taken into the blood of the mother are deposited in the tissue of the placenta, and are thence absorbed by the veins of the fœtus. *Edinburgh Med. and Surg. Jour.*

A case of Twins in which the Cæsarian Operation was performed with success, both to the mother and the two children. By Drs. Horn, sen. and jun.—This is a very remarkable case, both as to the cause which led to the necessity of the operation, and the happy manner in which it terminated. The woman, aged about 34 years, was of a very weak and hysterical habit of body, and had been delivered of a dead child, thirteen years before, from which she suffered much, in consequence of improper obstetrical assistance. Three years after this first delivery, she called on Dr. Horn for medical advice, and related to him the circumstance of her case. On examination, he found that the vagina was firmly closed, to within an inch of the os externum;

on the left side of the vagina an opening, scarcely large enough to admit a fine probe, passed obliquely upwards about one-fourth of an inch; through this small opening the menstrual fluid (which had hitherto returned pretty regularly) passed very slowly, and in small quantities. The patient refused to submit to any operation, for the purpose of dilating the cicatrized vagina. The Dr. heard no more of her until ten years afterwards, when she again presented herself before him for advice, in what was supposed an hysterick affection. Various remedies were given her, with but little advantage, until finally it was discovered that, notwithstanding the obstruction which existed to what was thought an adequate *immissio penis* for successful copulation, she was in a state of pregnancy. Under these circumstances, the forebodings of Dr. H. were but gloomy. After weighing every thing for and against the only two operations which could be resorted to, in this unpromising case: namely, cutting through the adhesions of the vagina, or performing the cæsarian operation, they determined in favour of the latter. This operation was accordingly performed, on the 27th of January, and in six weeks the patient was able to be out of bed. The two children were remarkably strong, and did exceedingly well. *Hufeland's Journal.*

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*Mercurial Ointment in Erysipelas.**—The American physicians (Drs. Dean and Little) have strongly recommended the application of mercurial ointment in cases of erysipelas. Mr. Brodie having tried this practice, found it efficacious, but that it was attended with the serious inconvenience of inducing salivation It at the same time occurred to him that the benefit derived was due more to the adipose matter than to the metalick oxide combined with it; and on employing a simple ointment in several instances which have occurred to him, he found that his idea was correct. He found that after its application the patient experienced almost immediate relief, and the disease appeared to go through its stages in a more favourable manner than under ordinary circumstances.

Lond. Med. Phys. Journ.

* We find practitioners almost universally condemning oily applications in Erysipelas, from the time of Dr. Cullen to this day. We have lately seen the most injurious effects produced by such an application in a case of this disease. EDITOR W. Q. R.

To the Physicians of the Western States.

BEING engaged in composing a Treatise on the Diseases of the Western Country, the undersigned begs leave, respectfully to solicit the assistance of his medical brethren. The plan of his work will admit of a notice of every disease that may have been observed to occur in this interior region; but he does not propose to give extended histories of those forms which are common to it, and other portions of the United States. His attention will be particularly turned to the modifications and variations that may have been produced by the soil, climate, diet and drinks, occupations and pursuits, to which the people of these states are subjected, or in which they may be engaged. Such facts, therefore, as relate to the influence of these, or any other class of remote causes, coming especially within the scope of his work will be thankfully received. Among the numerous objects to which his attention is directed, he will name the following, as those upon which he is particularly desirous of collecting information.

1. Our Summer Endemicks—Cholera Vulgaris, Cholera Infantum, Dysentery and Diarrhœa. Of their connexion with heat, humidity, local situation and diet;—their relative prevalence in town and country, and in high and low situations. Of their occurrence at other seasons than summer, and the modification when they then exhibit. Of their union or alternation in the same subject, and their conversion into other diseases, especially of the change of Cholera Infantum into Hydrocephalus.

2. Our Autumnal Fevers—Remitting and Intermitting. Of the times of their appearance and disappearance in successive years. The modifications of type which they exhibit, and their relative mortality in different autumns. Whether they ever put on the characteristick symptoms of the Yellow Fever of the maritime cities. Whether they have become more malignant in towns situated on our great rivers, since the introduction of steam boats. Whether there are any important differences between those which infest the mouths of the rivers which empty into Lake Erie, and those which occur about the confluence of the streams, which form the Mississippi. Of their treatment, with particular observations on blood-

letting, antimony, mercury, the bark, and water—cold, warm and tepid—as an external application.

3. Our Typhous Fevers. Whether from the times of their occurrence they might with propriety be called winter epidemicks. Whether the description given of Typhus Mitior, by the English physicians is applicable to it in this country. Whether it is ever contagious. To what extent it is induced by the employment of blood letting in the autumnal fever. Whether it generally seems to destroy life by invading the brain. Facts and conjectures relative to the causes of typhous atmospherick constitutions. Of the modifications of other fevers, and the phlegmasiæ by such constitutions. Of the treatment of Typhous Fevers—especially of the antimonial preparations, mercurials and cold water.

4. Of Puerperal Fever. Whether it has at any time been epidemick in the western country; and whether it incline more to a synocha or typhous type.

5. Of Scarlatina Anginosa, and Angina Maligna—in what way connected. Facts relative to their prevalence in 1792 or 3, and about the year 1810. The treatment, and especially of cold water. Of Measles—how far the antiphlogistick treatment, proper in this malady, is at any time to be modified from the prevalence of a typhous atmospherick constitution.—What is the nature and proper treatment of the disease attending the retrocession of this eruption. Whether it ever happens in the remote settlements, independently of contagion. Of the Small-pox and Cow-pox—Whether the former still continues to prevail in any part of the Western country; and what are the obstacles to the general adoption of the latter. Whether Urticaria should be considered an idiopathick affection, or is always symptomatick of a disorder in the stomach.

6. Of Phlegmasiæ, of the lungs, trachea and fauces. Of their modification by a typhous atmospherick constitution. Whether the Pneumonia Typhodes ever prevailed in these states before the year 1812 or 13. Whether it did not chiefly occur in the country. In what respect it resembled the Spotted Fever of New England. Whether stimulants and tonicks were not injurious in the treatment of it; and whether gastrick and alvine evacuation was not more safe and proper than sanguineous.

Of the relative prevalence of Croup in different seasons of the year. Of its connexion in June and July, with Cholera Infantum. How far blood-letting is proper in its treatment.

Of Pulmonary Consumption. Whether genuine Consumption is not a rare disease in the Western country. Whether the greater number of cases which receive the name are not *sequelæ*, of Dyspepsia or Hepatitis. To what causes the infrequency of true phthisis should be ascribed. Whether any remedy for it has been found. Are there any proofs that an emigration from the seaboard to the West has caused this disease? Have not the persons which have been cured by mercury been affected with dyspeptick consumption? Is not the chronick inflammation of the mucous membrane of the fauces which sometimes accompanies this disease, the effect of the pulmonary disorder?

7. Of Rheumatism. Its relative frequency among different classes. Its translation to internal organs. Of the means of cure—bloodletting antimony, mercury, stramonium, the bark, percussion and bandages. Whether gout is not a rare disease in the West.

8. Whether Ophthalmia does not appear as an autumnal epidemick, especially in the newer settlements. Whether it does not sometimes assume an intermitting form, and very commonly require general remedies. Is it ever contagious?

9. Of Jaundice and Hepatitis. Whether the former ever occurs as an epidemick. Is the bark of the wild cherry tree (*Prunus Virginiana*) of greater efficacy in this disease than the other vegetable bitters? If so, is it owing to the presence of prussick acid? Is chronick hepatitis, when not the offspring of intemperance nor autumnal fever, produced by the heat of our climate, or by miasmata?

10. Of Dyspepsia. Whether it be more prevalent in the western or the eastern states. Whether tobacco, tea, coffee, whiskey and hot bread, used to excess, are not its most efficient remote causes. How far the climate is concerned in its production. Of the nature of the acid in dyspeptick stomachs, and whether it be the effect of fermentation or morbid secretion. Of the diseases in the animal functions that are observed to arise from dyspepsia. Whether this disease generally abates about the 34th year. Of the cure.

11. Of the premature decay of Teeth. How far it arises

from climate, negligence, or indigestion. Is the use of tobacco in any degree a preventive?

12. Of Calculous Disorders. Whether they arise from the use of the calcareous waters which are generally drank in the Western Country.

13. Of Chronick diseases of the Skin. Whether it be true that some varieties of Psora are peculiar to the West.

14. Whether Tetanus ever appears as an idiopathick disease. Does it as frequently supervene upon wounds in the Western Country as in other places?

15. Of the relative prevalence of Hydrophobia, Mania, Palsy, and Apoplexy in the West and East.

16. Of the rare occurrence of Scurvy, Rickets and Goitre.

17. Of the diseases attendant on or following the earthquakes of 1811—of those occurring at the lead mines and at the salines or salt works.

18. Of the diseases produced by the bite of the rattle-snake, copper-head, and other venomous serpents. Their symptoms, pathology and cure.

19. Of the disease called "Sick Stomach" and "Milk Sickness." Its symptoms, and the seasons and situations in which it prevails. Of its remote causes—miasma, milk and flesh of herbivorous animals eaten by man, water with poisonous impregnation. *Post mortem* examinations. Cure.

20. Of the appearance and disappearance of diseases from clearing and cultivation—the introduction of new arts and occupations—the adoption of new modes of living.

21. Of the morbid effects of premature marriages.

22. Of the prolongation of life by an emigration to the Western States.

23. Of diseases of the Indians, especially those introduced by their intercourse with the whites. Of the causes of their decay in numbers.

24. Of diseases of the Negroes. How far they are liable to the ordinary complaints of the whites. Of the prevalence of Scrofula among them.

25. Of Epizootick medicine, or the diseases of brute animals in the West. Of the symptoms, causes and cure of the complaint which in cattle is compared to the "Sick Stomach" in man. Of the disorder produced by eating the leaves and nuts

of the fœtid buckeye (*Æsculus Ohioensis*, of the younger Michaux.) Of the autumnal salivation of horses.

26. An account of the soil and climate at each spot where observations on any of the above topicks may be made.

The undersigned is not so unreasonable as to ask or expect replies to the whole of these queries from any individual. He flatters himself, however, that from among the numerous practitioners of the Western States and Territories, he may be favoured with information not only on the subjects here designated, but on every other involved in a comparison between the diseases of the Western Country and other parts of the world. To such as may be able and willing to promote the object in view, by entrusting him with the results of their experience, he engages to do full and equal justice in the quotations he may have occasion to make. Communications made at any period before the end of the year 1823, will be in time to answer the purposes intended.

DANIEL DRAKE, M. D.

Cincinnati, Ohio, September 1st, 1822.

TO CORRESPONDENTS.

OUR readers will perceive with satisfaction, that we have given the whole of M. Monfalcon's article on Infanticide (from the *Dict. des Sciences Medicales,*) in our second and third numbers. We believe that they will acknowledge the articles translated for the Reporter from that work, to be superior to any of the treatises on the same subject hitherto published.

We particularly invite the attention of our readers to the Circular of Dr. Drake, as we are convinced they will be happy to give every assistance in perfecting so desirable a work. From the specimens of scientifick composition hitherto offered by this gentleman, we feel convinced that he will sustain his high reputation by the proposed *Treatise on the Diseases of the Western Country.*

We regret that the paper on "*The Sick Stomach,*" by Dr. Bennet, of Kentucky, came a few days too late for this number: it shall appear in number IV.

We return our thanks to Mr. Dorfeuille for the beautiful Entomological Table furnished for this number. The same

gentleman has prepared for us descriptions and drawings of several interesting objects of Natural History.

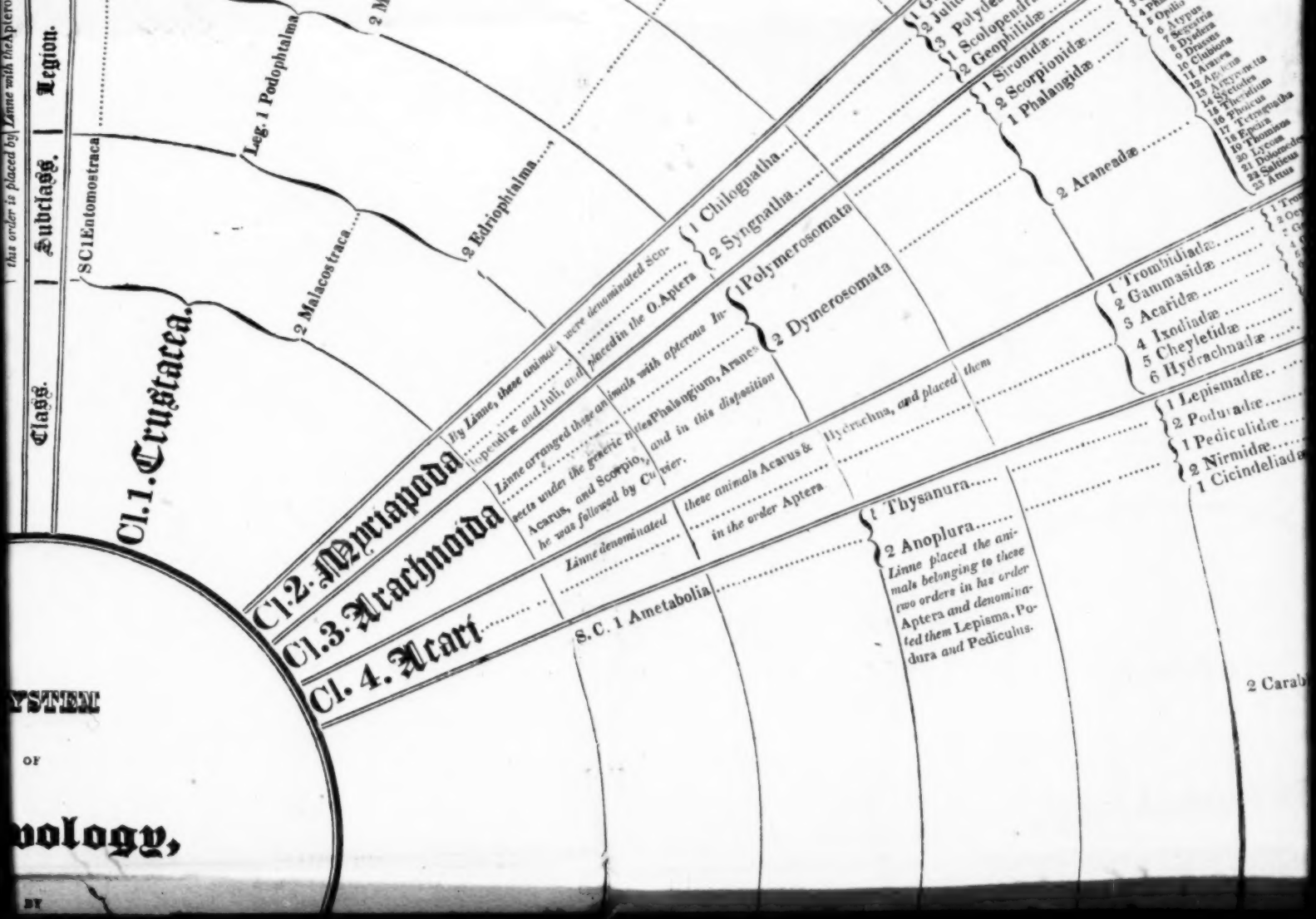
Mr. R. Best is preparing for our next number a description and drawing of a very singular and beautiful HYBRID PLANT. We need scarcely remark, that we shall be always happy to give a place in the Reporter to papers from a gentleman so well qualified to convey both pleasure and instruction.

Our readers will be happy to learn that the Reporter is acquiring able contributors in various quarters of the Western Country. We are in daily expectation of receiving some valuable intelligence from our friend COL. JOHNSON, Indian Agent at Piqua, relative to the diseases &c. of that region. A mathematician of high standing and talents, has promised us a paper on the doctrine of INFINITES. Several reports of cases in medicine and surgery, as well as descriptions of Natural productions, are expected from the state of Missouri. Our learned friend Dr. LUCKEY, of Circleville, has also promised us a paper on the diseases of the SCIOTO COUNTRY.

We have been obliged to defer the account of the introduction and use of PRUSSICK ACID, until we can collect a larger number of the works containing the reports of Experiments made with it. If we can possibly succeed in making the compilation in time, it shall appear in our next.

Entomology.—The tabular view of a system of Entomology, given in the present number of the WESTERN QUARTERLY REPORTER, contains the genera established by the most celebrated Entomologists in Europe. Their relations to the Linnean system, is nearly the same as that published in the Encyclypædia Brittanica, and in the Edinburgh Encyclopædia by Brewster, with the exception of foreign genera and the alteration of *Tribes* into Families, terminating in *idæ*.

This table was prepared from, and intended to accompany "An Essay on American Entomology, illustrated by coloured representations of the insects described, together with descriptions and representations of Insects from examinations with the microscope, by J. DORFEUILLE."


this order is placed by Linne with the Apteros
Class. | Subclass. | Legion.
Cl. 1. Crustacea.
SC 1 Entomostraca
2 Malacostraca
Leg. 1 Podophthalma
2 Edriophthalma
2 Myriapoda
Cl. 3. Arachnoida
Cl. 4. Acari
By Linne, these animals were denominated Scolopendræ and Juli, and placed in the O. Aptera
Linne arranged these animals with apterous Insects under the generic titles Phalangium, Aranea, Acarus, and Scorpio, and in this disposition he was followed by Cuvier.
Linne denominated these animals Acarus & Hydrachna, and placed them in the order Aptera
1 Chilognatha
2 Syngnatha
1 Polymerosomata
2 Dymerosomata
1 Thysanura
2 Anoplura
Linne placed the animals belonging to these two orders in his order Aptera and denominated them Lepisma. Podura and Pediculus.
S. C. 1 Ametabolia
1 Julidæ
2 Polydesmidæ
3 Polyxenidæ
1 Scolopendridæ
2 Geophilidæ
1 Stirondæ
2 Scorpionidæ
1 Phalangidæ
2 Araneadæ
1 Trombidiadæ
2 Gammasidæ
3 Acaridæ
4 Ixodidæ
5 Cheyletidæ
6 Hydrachnadæ
1 Lepismadæ
2 Poduradæ
1 Pediculidæ
2 Nirmidæ
1 Cicindeliadæ
2 Carab
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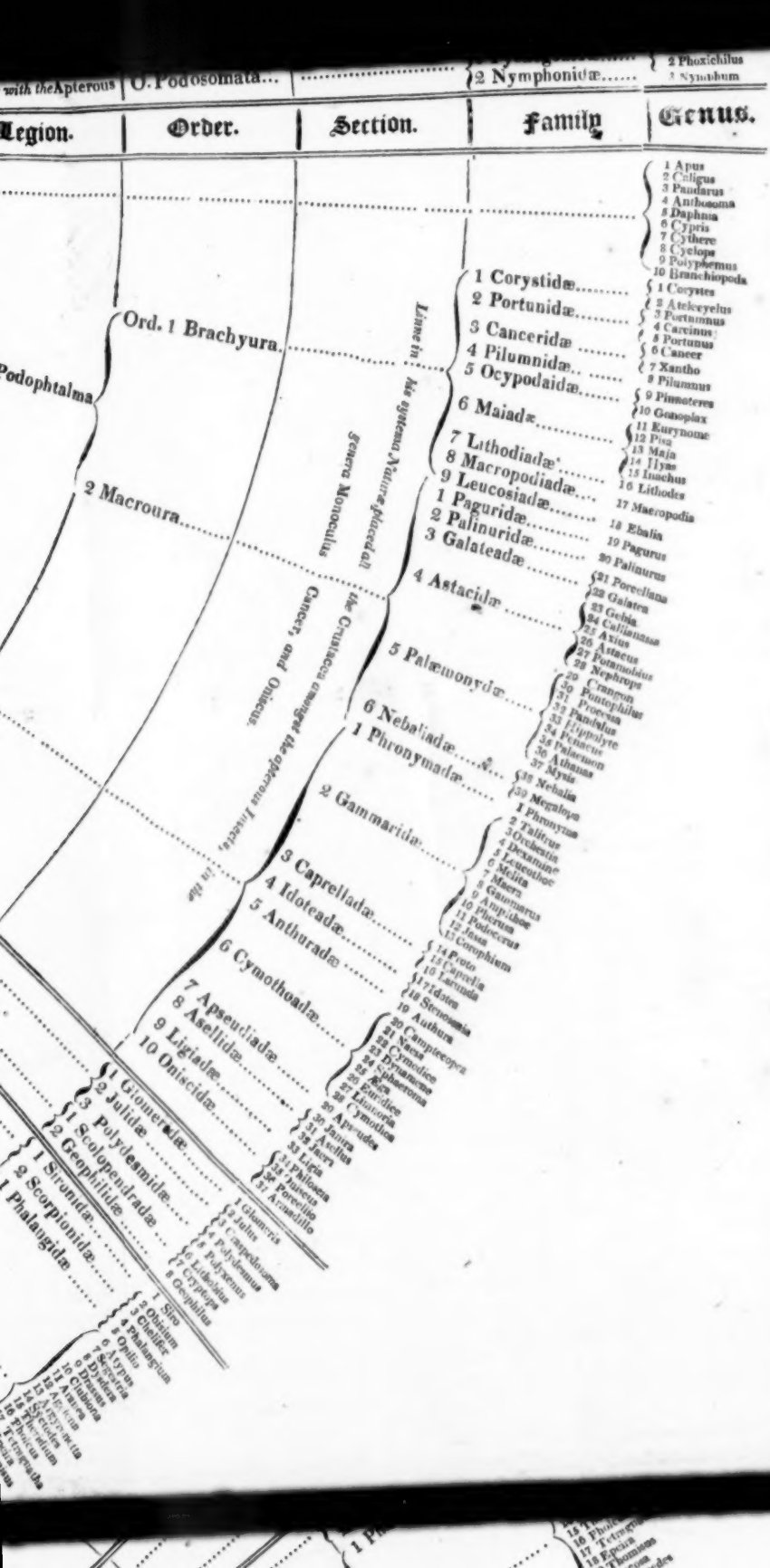

with the Apterous
O. Podosomata...
2 Nymphonidæ.....
2 Phoxichilus
Legion.
Order.
Section.
Family
Genus.
1 Apus
2 Caligus
3 Pandarus
4 Anthosoma
5 Daphnia
6 Cypris
7 Cythere
8 Cyclops
9 Polyphemus
10 Branchiopoda
1 Corystidæ.....
2 Portunidæ.....
3 Canceridæ .....
4 Pilumnidæ.....
5 Ocypodaidæ.....
6 Maiadæ.....
7 Lithodiadæ.....
8 Macropodiadæ.....
9 Leucosiadæ.....
1 Corystes
2 Atelecyclus
3 Portunnus
4 Carcinus
5 Portunus
6 Cancer
7 Xantho
8 Pilumnus
9 Pinnoteres
10 Gonoplax
11 Eurynome
12 Pisa
13 Maja
14 Ilyas
15 Inachus
16 Lithodes
17 Macropodia
Ord. 1 Brachyura.
2 Macroura
Podophthalma
Linnæus
Its system Nature placed all
Genera Monoculus
the Crustacea
Cancer, and
Oniscus
In the
1 Paguridæ.....
2 Palinuridæ.....
3 Galateadæ.....
4 Astacidæ .....
5 Palæmonydæ.....
6 Nebaliadæ.....
1 Phronymadæ.....
2 Gammaridæ.....
3 Caprelladæ.....
4 Idoteadæ.....
5 Anthuradæ .....
6 Cymothoadæ.....
7 Apseudiadæ.....
8 Aselliadæ.....
9 Ligiadæ.....
10 Oniscidæ.....
1 Glomeridæ.....
2 Julidæ .....
3 Polydesmidæ.....
1 Scolopendradæ.....
2 Geophilidæ .....
1 Stronidæ.....
2 Scorpionidæ.....
1 Phalangidæ .....
18 Ebalia
19 Pagurus
20 Palinurus
21 Porcellana
22 Galatea
23 Gebia
24 Callianassa
25 Axius
26 Astacus
27 Potamobius
28 Nephrops
29 Crangon
30 Pontophilus
31 Processa
32 Pandalus
33 Hippolyte
34 Penæus
35 Palæmon
36 Athanas
37 Mysis
38 Nebalia
39 Megalopa
1 Phronyma
2 Talitrus
3 Orchestia
4 Dexamine
5 Leucothoë
6 Melita
7 Maera
8 Gammarus
9 Amphithoë
10 Phoxus
11 Podocerus
12 Jassa
13 Corophium
14 Proto
15 Caprella
16 Larmida
17 Idotea
18 Stenosoma
19 Anthura
20 Camptocerus
21 Nesea
22 Cymodice
23 Dynamene
24 Sphaeroma
25 Eurydice
26 Limnoria
27 Cymothoa
28 Apseudes
29 Asellus
30 Janira
31 Jaera
32 Ligia
33 Philoscia
34 Porcellio
35 Armadillo
1 Glomeris
2 Julus
3 Craspedosoma
4 Polydesmus
5 Polyxenus
6 Lithobius
7 Cryptops
8 Geophilus
1 Siro
2 Obisium
3 Chelifer
4 Phalangium
5 Opilio
6 Atypus
7 Aranea
8 Dysdera
9 Clotho
10 Drassus
11 Argyroneta
12 Agelena
13 Tetragnatha
14 Epeira
15 Theridium
16 Phrurolithus
17 Tetragnatha
18 Epeira
19 Thomisus
20 Lycosa

A SYSTEM

OF

tomology,

BY

ORFEUILLE.

Quarterly Reporter, by Morgan, Lodge and Co.

Class 5. Insecta.

This class alone refers to the seven different orders
Class 5, Insects, volumes second

established by Linné
and third, Turton's

Cl. 1. Crustacea.

Cl. 2. Myriapoda

Cl. 3. Arachnoida

Cl. 4. Acari

Class. | Subclass.

SC 1 Entomostraca

2 Malacostraca

Leg.

2 Ediophthalma

this order is placed by

By Linné, these animals were denominated Scorpiones and Juli, and placed in the O. Aptera

Linné arranged these animals with apterous Insects under the generic titles Phalangium, Araneus, Acarus, and Scorpio, and in this disposition he was followed by Cuvier.

Linné denominated these animals Acarus & placed in the order Apte

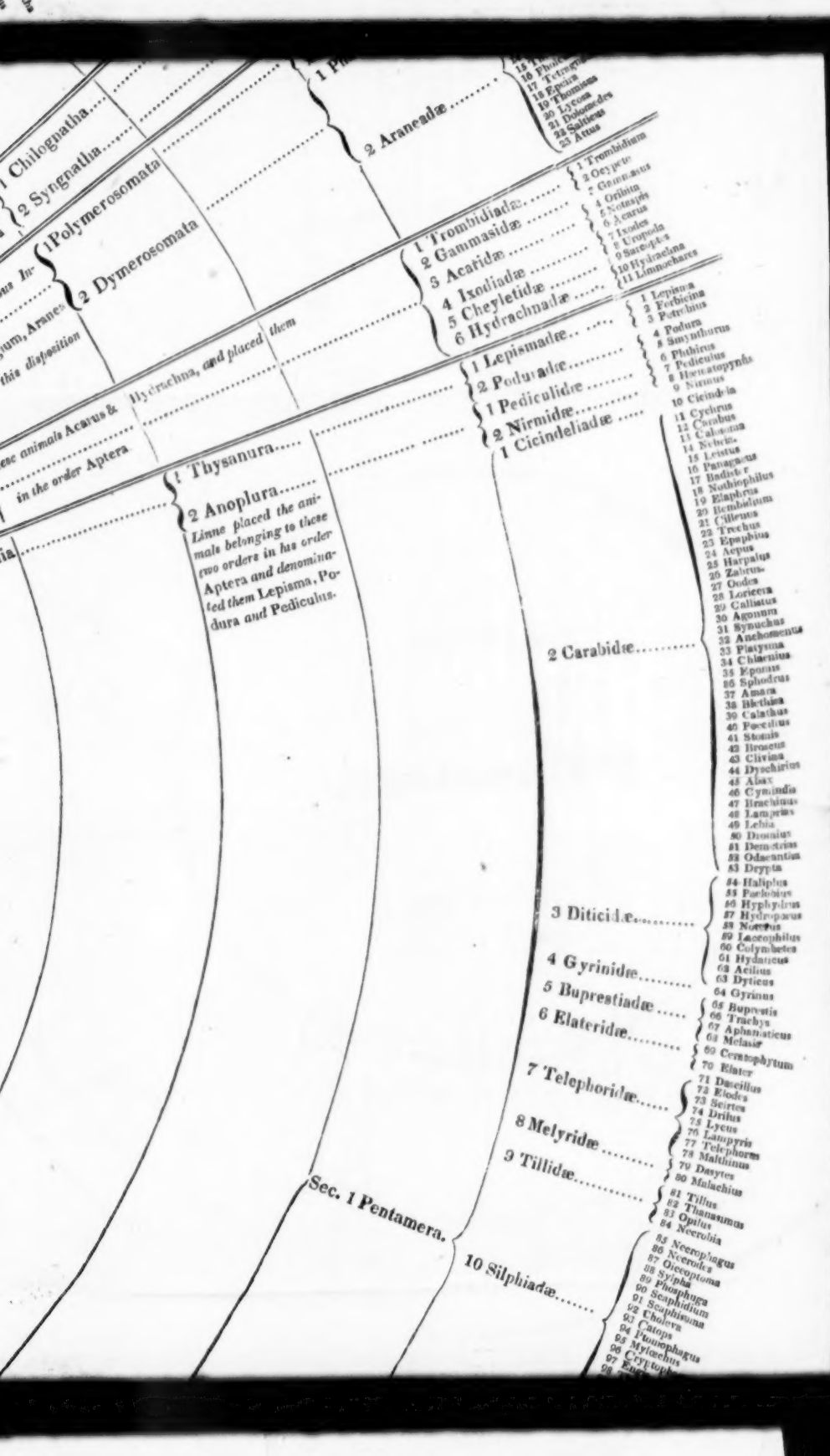
S. C. 1 Ametabolia

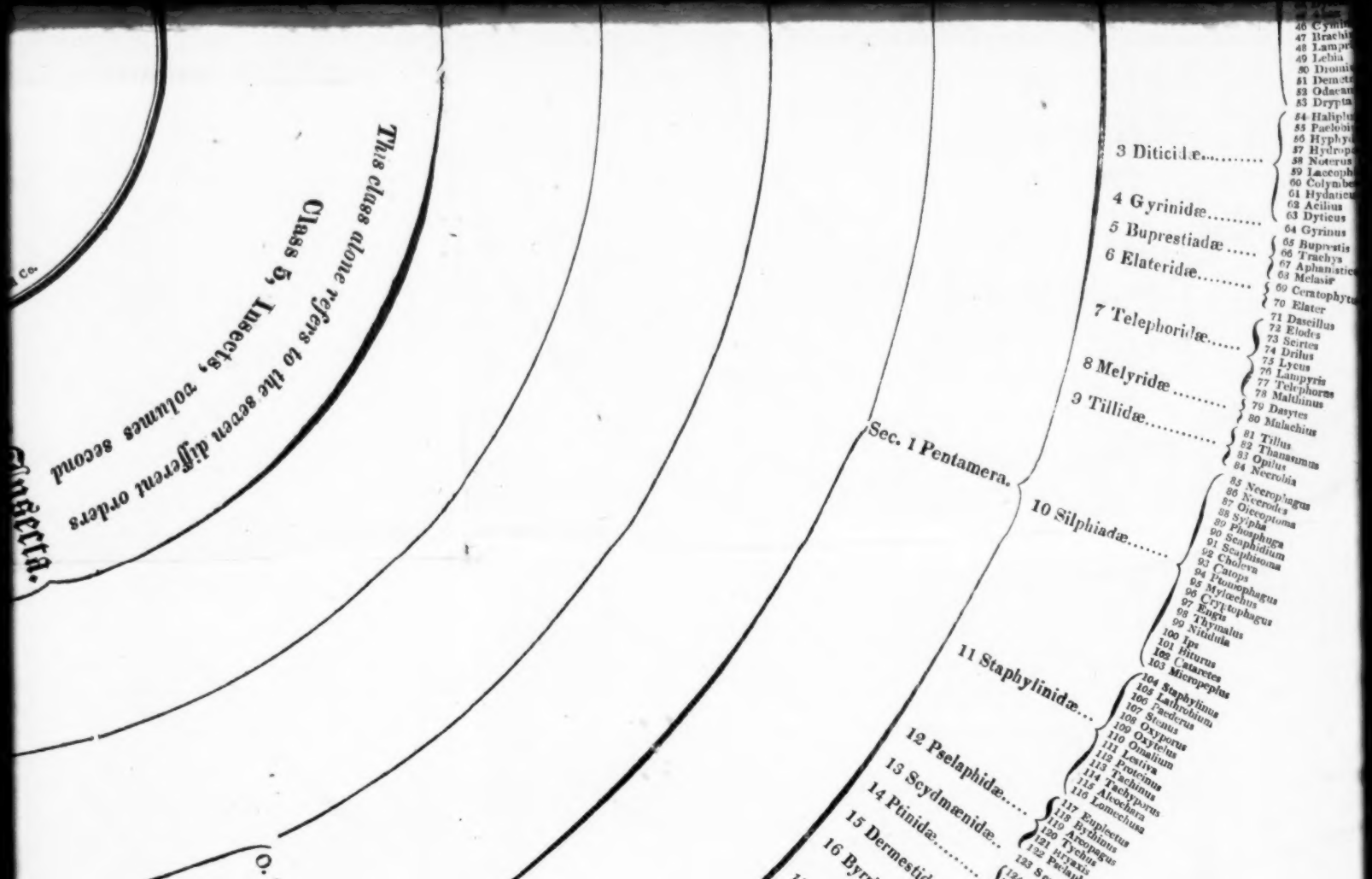
1 Chilognatha

2 Syngnatha

1 Polymero

2 Dy


1 Chilognatha
2 Syngnatha
1 Polymerosomata
2 Dymerosomata
Hycrachna, and placed them
in the order Aptera
1 Thysanura
2 Anoplura
Linne placed the animals belonging to these two orders in his order Aptera and denominated them Lepisma, Podura and Pediculus.
2 Araneadæ
1 Trombidiadæ
2 Gammasidæ
3 Acaridæ
4 Ixodiadæ
5 Cheyletidæ
6 Hydrachnadæ
1 Trombidium
2 Oeyptes
3 Gammasus
4 Orbita
5 Notenyes
6 Acarus
7 Ixodes
8 Uropoda
9 Sarcoptes
10 Hydrachna
11 Limnochares
1 Lepismadæ
2 Poduradæ
1 Pediculidæ
2 Nirmidæ
1 Cicindeliadæ
1 Lepisma
2 Forbicina
3 Petrobius
4 Podura
5 Smynthurus
6 Phthirus
7 Pediculus
8 Hæmatopynus
9 Nirmus
10 Cicindela
11 Cychrus
12 Carabus
13 Calosoma
14 Rebria
15 Leistus
16 Panagæus
17 Badister
18 Nothiophilus
19 Elaphrus
20 Rembidium
21 Cillenus
22 Trechus
23 Epaphius
24 Aepus
25 Harpalus
26 Zabrus
27 Oodes
28 Loricera
29 Callistus
30 Agonum
31 Synuchus
32 Anchomenus
33 Platynus
34 Chlaenius
35 Eponus
36 Sphodrus
37 Amara
38 Blethisa
39 Calathus
40 Poecilus
41 Stomis
42 Broscus
43 Clivina
44 Dyschirius
45 Ablax
46 Cymindis
47 Brachinus
48 Lamprias
49 Lebia
50 Dromius
51 Demetrias
52 Odacantha
53 Drypta
2 Carabidæ
54 Haliplus
55 Pselaphus
56 Hyphydrus
57 Hydroporus
58 Noterus
59 Laccophilus
60 Colymbetes
61 Hydaticus
62 Acilius
63 Dytiscus
3 Diticidæ
64 Gyrinus
4 Gyrinidæ
65 Buprestis
66 Trachys
67 Aphanisticus
68 Melasis
5 Buprestiadæ
69 Cerotophytum
70 Elater
6 Elateridæ
71 Dascillus
72 Elodes
73 Seirtes
74 Drilus
75 Lycus
76 Lampyris
77 Telephorus
78 Malthinus
7 Telephoridæ
79 Dasytes
80 Malachius
8 Melyridæ
81 Tillus
82 Thanasimus
83 Opilus
84 Necrobia
9 Tillidæ
85 Necrophagus
86 Necrodes
87 Silpha
88 Sphæridium
89 Phosphuga
90 Scaphidium
91 Scaphisoma
92 Cholevs
93 Catops
94 Colon
95 Mylœchus
96 Cryptophagus
97 Engis
98 Dermestes
10 Silphiadæ
Sec. 1 Pentamera.


Class 6, Insects, volumes second
This class alone refers to the seven different orders
Sec. 1 Pentamera.
3 Ditici.dæ.....
4 Gyrinidæ.....
5 Buprestiadæ.....
6 Elateridæ.....
7 Telephoridæ.....
8 Melyridæ.....
9 Tillidæ.....
10 Silphiadæ.....
11 Staphylinidæ...
12 Pselaphidæ....
13 Scydmænidæ..
14 Ptinidæ.....
15 Dermestid
16 Byr
46 Cymi
47 Brachi
48 Lampr
49 Lebia
50 Dromi
51 Demet
52 Odacan
53 Drypta
54 Haliplu
55 Paeloon
56 Hyphyd
57 Hydrop
58 Noterus
59 Laccoph
60 Colymbe
61 Hydrate
62 Acilius
63 Dyticus
64 Gyrinus
65 Buprestis
66 Trachys
67 Aphanistic
68 Melasis
69 Ceratophyt
70 Elater
71 Dascillus
72 Elodes
73 Scirtes
74 Drilus
75 Lycus
76 Lampyris
77 Telephorus
78 Malthinus
79 Dasytes
80 Malachius
81 Tillus
82 Thanasimus
83 Opilus
84 Necrobia
85 Necrophagus
86 Necrodes
87 Oiceoptoma
88 Silpha
89 Phosphuga
90 Scaphidium
91 Scaphisoma
92 Cholera
93 Catops
94 Pinnophagus
95 Mylæchus
96 Cyrtotophagus
97 Eurgis
98 Thymalus
99 Nitidula
100 Ips
101 Ifiturus
102 Cataretes
103 Micropeplus
104 Staphylinus
105 Lathrobium
106 Paederus
107 Stenus
108 Oxyporus
109 Oxytelus
110 Omalium
111 Leatiya
112 Proteinus
113 Tachinus
114 Tachyporus
115 Alcocharа
116 Loinechusa
117 Euplectus
118 Bythinus
119 Arcopagus
120 Tychus
121 Hirtaxis
122 Pselaph
123 S
(12
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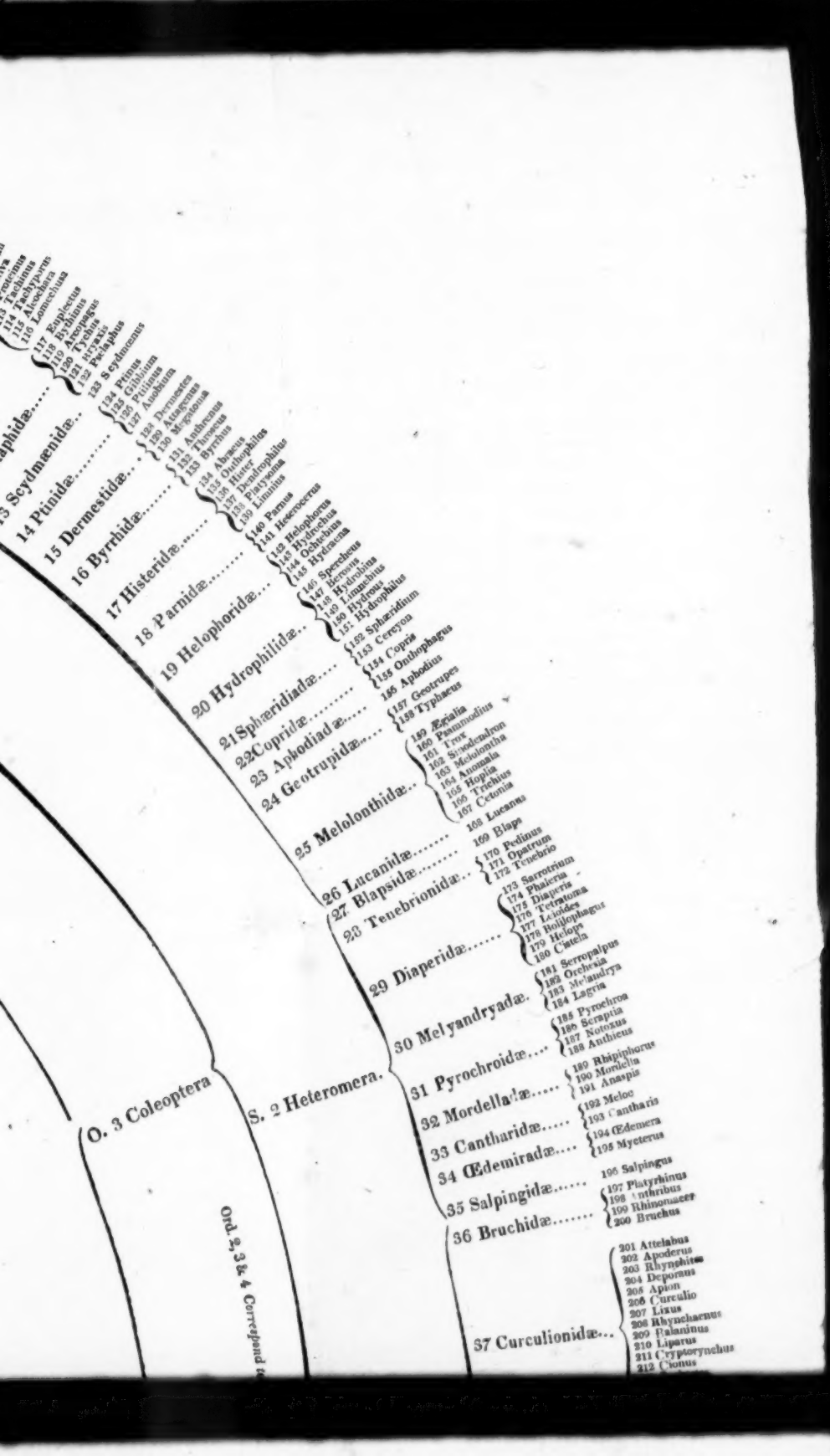
(16


O. 3 Coleoptera
S. 2 Heteromera.
Ord. 2, 3 & 4 Correspond
13 Scydmænidæ.....
14 Ptinidæ.....
15 Dermestidæ.....
16 Byrrhidæ.....
17 Histeridæ.....
18 Parnidæ.....
19 Helophoridæ...
20 Hydrophilidæ...
21 Sphæridiadæ.....
22 Copridæ.....
23 Aphodiadæ.....
24 Geotrupidæ.....
25 Melolonthidæ...
26 Lucanidæ.....
27 Blapsidæ.....
28 Tenebrionidæ...
29 Diaperidæ.....
30 Melyandryadæ.
31 Pyrochroidæ....
32 Mordellidæ.....
33 Cantharidæ.....
34 Œdemeradæ....
35 Salpingidæ.....
36 Bruchidæ.....
37 Curculionidæ...
201 Attelabus
202 Apoderus
203 Rhynchites
204 Deporaus
205 Apion
206 Curculio
207 Lixus
208 Rhynchaenus
209 Balaninus
210 Liparus
211 Cryptorynchus
212 Clonus

Class 5. Insecta.

established by Linne in his Systema Naturæ, and third, Turton's edition of 1806.

Ord. 1 alone refers to the seven different orders
of Class 5, Insects, volumes second

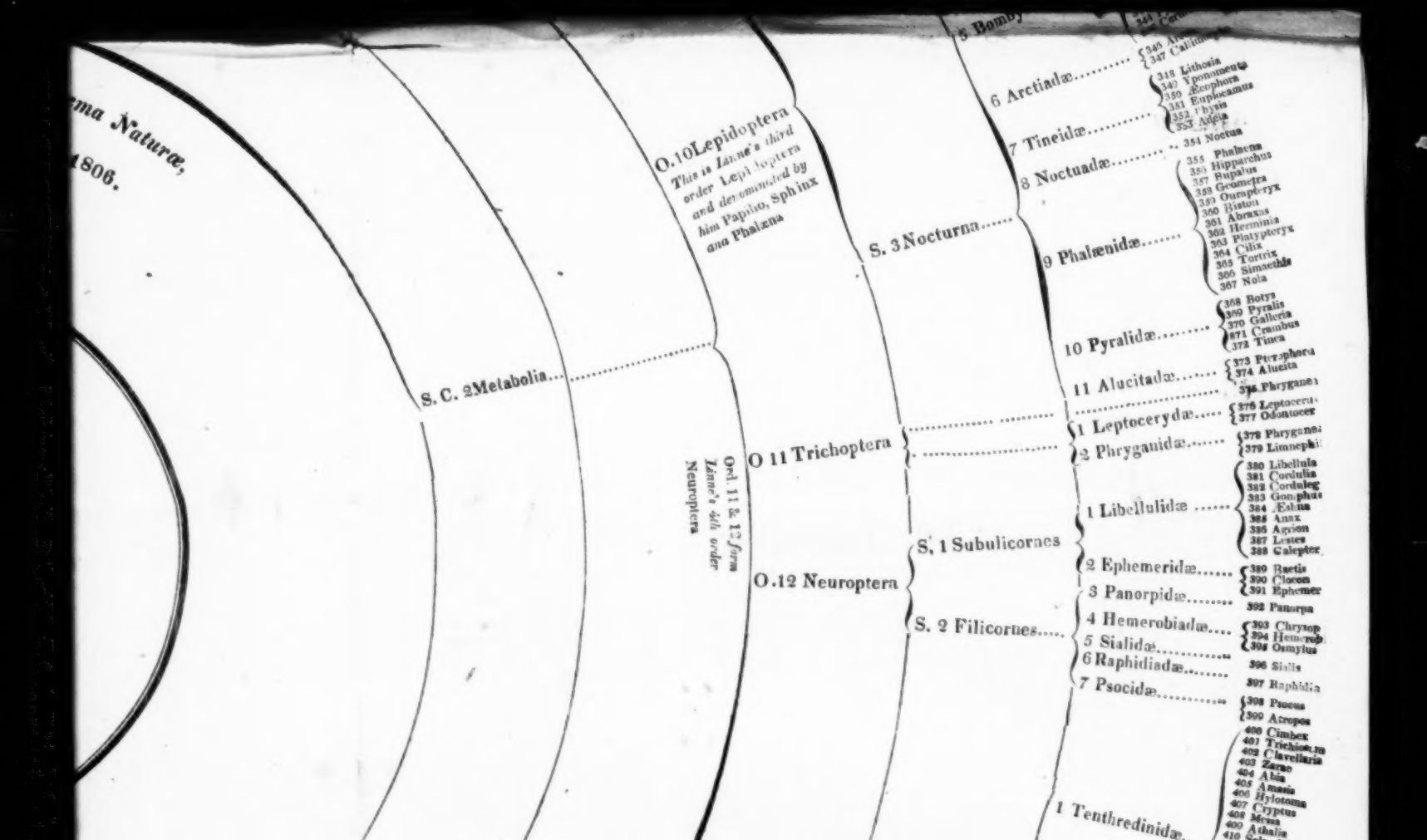
Ord. 2, 3 & 4 *Correspond to Linne's first Entomological order* Coleoptera

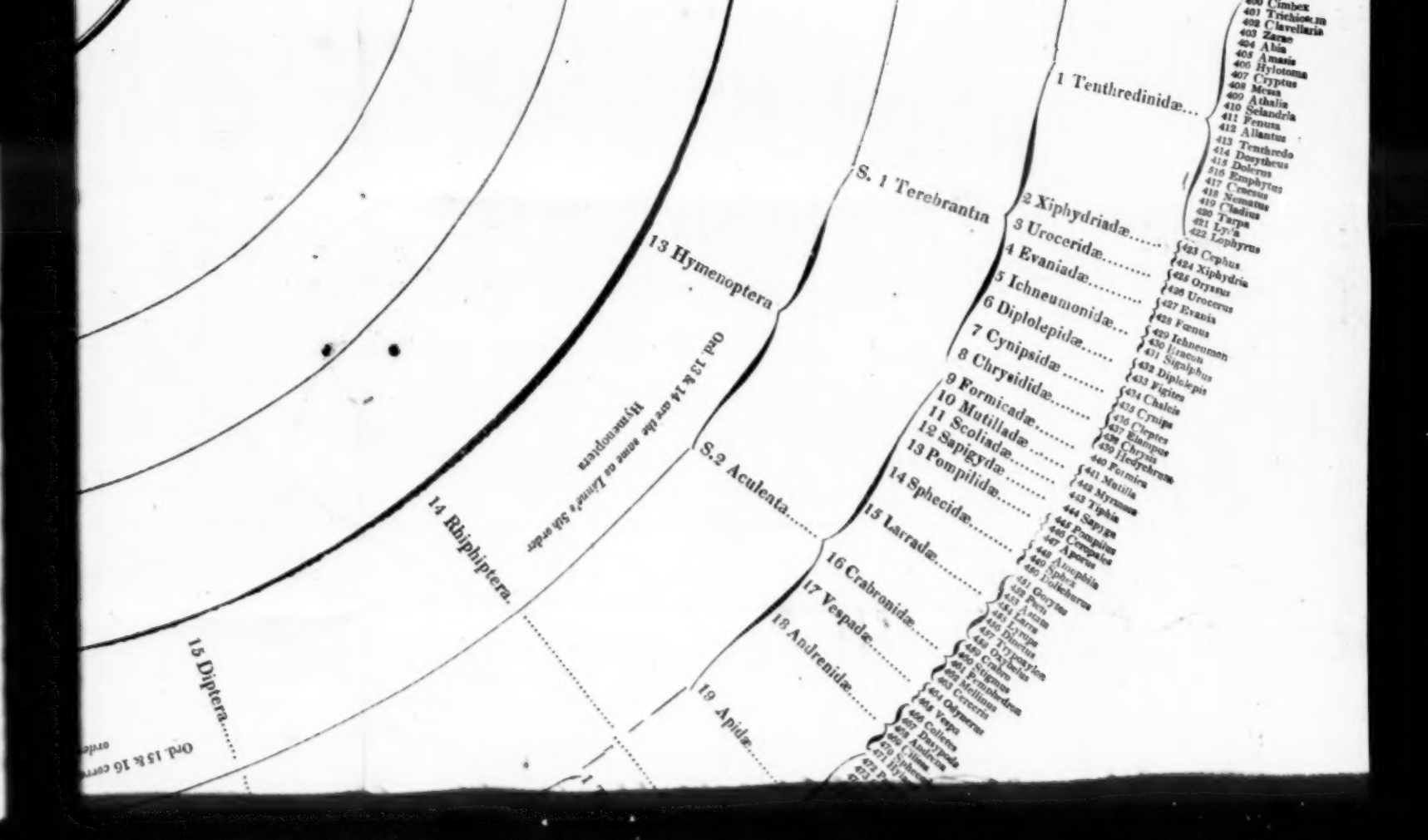
Ord. 5, 6, 7 & 8 *refer to Linne's second order* Hemiptera

O. 3 Coleoptera
- S. 2 Heteromera
  - 29 [illegible]
  - 30 Melyandryadæ
    - 182 Meloe
    - 183 Lagria
    - 184 Pyrochroa
    - 185 Scraptia
    - 186 Notoxus
    - 187 Anthicus
  - 31 Pyrochroidæ
    - 188 Rhipiphorus
    - 189 Mordella
    - 190 Anaspis
  - 32 Mordellidæ
    - 191 Meloe
    - 192 Cantharis
  - 33 Cantharidæ
    - 193 Œdemera
  - 34 Œdemeridæ
    - 194 Œdemera
    - 195 Myserus
  - 35 Salpingidæ
    - 196 Salpingus
    - 197 Phlyctinus
    - 198 Rhinosimus
    - 199 Rhinosimus?
    - 200 Bruchus
  - 36 Bruchidæ
    - 201 Attelabus
    - 202 Apoderus
    - 203 Rhynchites
    - 204 Deporaus
    - 205 Apion
    - 206 Curculio
    - 207 Lixus
    - 208 Rhachaenus
    - 209 Balaninus
    - 210 Liparus
    - 211 Cryptorynchus
    - 212 Clonus
    - 213 Orchestes
    - 214 Calandra
    - 215 Cossonus
  - 37 Curculionidæ
    - 216 Hylurgus
    - 217 Tomicus
    - 218 Platypus
    - 219 Scolytus
    - 220 Hylesinus
  - 38 Bostricidæ
    - 221 Cis
    - 222 Cerylon
    - 223 Monotoma
  - 39 Cisidæ
- S. 3 Tetramera
  - 224 Myrmecophagus
  - 225 Latridius
  - 226 Silvanus
  - 227 Lyctus
  - 228 Trogosita
  - 40 Mycetophagidæ
  - 229 Prionus
  - 41 Pryonidæ
  - 230 Lamia
  - 231 Saperda
  - 232 Cerambyx
  - 233 Clytus
  - 234 Callidium
  - 235 Molorchus
  - 42 Cerambycidæ
  - 236 Leptura
  - 237 Rhagium
  - 238 Harpium
  - 43 Lepturadæ
  - 239 Donacia
  - 240 Crioceris
  - 44 Crioceridæ
  - 241 Cassida
  - 242 Galerucea
  - 243 Adimonia
  - 244 Haltica
  - 245 Chrysomela
  - 246 Helodes
  - 247 Cryptocephalus
  - 248 Clythra
  - 45 Chrysomelydæ
- S. 4 Trimera
  - 249 Trirema
  - 250 Typha
  - 251 Phalacrus
  - 252 Agathidium
  - 46 Erotylidæ
  - 253 Coccinella
  - 254 Chilocorus
  - 47 Coccinellidæ
  - 255 Endomychus
  - 256 Lycoperdina
  - 48 Endomychidæ
- O. 4 Dermaptera
  - 1 Achetidæ
- O. 5 Orthoptera
  - 257 Forficula
  - 258 Labidura
  - 2 Gryllidæ
  - 3 Locustidæ
- O. 6 Dictyoptera
- O. 7 Hemi[illegible]
  - 261 Gryllotalpa
  - 262 Acheta

Printed for the Western Quarterly Reporter, by Morgan, Lodge and Co.

O. 7 Hemiptera.
S. 1 Terrestria
S. 2 Aquatica
1 Pentatomidæ
2 Coreidæ
3 Cimicidæ
4 Hydrometridæ
5 Acanthiadæ
6 Nepadæ
7 Notonectidæ
1 Cicadidæ
2 Cercopidæ
3 Psyllidæ
4 Aphidæ
5 Coccidæ
O. 8 Omoptera
O. 9 Aptera
One 9 refers
to Linné's 7th order Aptera, gemmaPulex.
S.1 Diurna
S.2 Crepuscularia
S. 3 Nocturna
1 Papilionidæ
2 Hesperidæ
3 Sphingidæ
4 Zygænidæ
5 Bombycidæ
6 Arctiadæ
7 Tineidæ
8 Noctuadæ
9 Phalænidæ
O. 10 Lepidoptera
This is Linné's third order Lepidoptera and denominated by him Papilio, Sphinx and Phalæna


ma Naturæ;
1806.
S. C. 2 Metabolia
O. 10 Lepidoptera
This is Linné's third order Lepidoptera and denominated by him Papilio, Sphinx ana Phalæna
O 11 Trichoptera
O. 12 Neuroptera
Ord. 11 & 12 form Linné's 4th order Neuropiera
S. 3 Nocturna
S, 1 Subulicornes
S. 2 Filicornes
5 Bomby
6 Arctiadæ
7 Tineidæ
8 Noctuadæ
9 Phalænidæ
10 Pyralidæ
11 Alucitadæ
1 Leptocerydæ
2 Phryganidæ
1 Libellulidæ
2 Ephemeridæ
3 Panorpidæ
4 Hemerobiadæ
5 Sialidæ
6 Raphidiadæ
7 Psocidæ
1 Tenthredinidæ
348 Lithosia
349 Yponomeuta
350 Ecophora
351 Euplocamus
352 Physis
353 Adela
354 Noctua
355 Phalæna
356 Hipparchus
357 Bupalus
358 Geometra
359 Ourapteryx
360 Biston
361 Abraxas
362 Herminia
363 Platypteryx
364 Cilix
365 Tortrix
366 Simaethis
367 Nola
368 Botys
369 Pyralis
370 Galleria
371 Crambus
372 Tinea
373 Pterophora
374 Alucita
375 Phryganea
376 Leptocerus
377 Odontocer
378 Phryganea
379 Limnephil
380 Libellula
381 Cordulia
382 Corduleg
383 Gomphus
384 Æshna
385 Anax
386 Agrion
387 Lester
388 Calepter
389 Baetis
390 Cloeon
391 Ephemer
392 Panorpa
393 Chryso
394 Hemerob
395 Osmylus
396 Sialis
397 Raphidia
398 Psocus
399 Atropos
400 Cimbex
401 Trichiosoma
402 Clavellaria
403 Zarae
404 Abia
405 Amasis
406 Hylotoma
407 Cryptus
408 Mesa
409 Athalia
410 Schi


13 Hymenoptera
S. 1 Terebrantia
1 Tenthredinidæ
2 Xiphydriadæ
3 Uroceridæ
4 Evaniadæ
5 Ichneumonidæ
6 Diplolepidæ
7 Cynipsidæ
8 Chryididæ
9 Formicadæ
10 Mutillidæ
11 Scoliadæ
12 Sapigydæ
13 Pompilidæ
14 Sphecidæ
15 Larradæ
16 Crabronidæ
17 Vespadæ
18 Andrenidæ
19 Apidæ
S. 2 Aculeata
14 Rhiphiptera
15 Diptera
Ord. 13 & 14 are like some as Linné's Sub order Hymenoptera
Ord. 15 & 16 corresp
orde
Cimbex
Trichiosoma
Clavellaria
Zaraea
Abia
Amasis
Hylotoma
Cryptus
Mesas
Athalia
Selandria
Fenusa
Allantus
Tenthredo
Dosythesus
Dolerus
Emphytus
Cresesus
Nematus
Cladius
Tarpa
Lyda
Lophyrus
Cephus
Xiphydria
Oryssus
Urocerus
Evania
Fenus
Ichneumon
Braneus
Sigalphus
Diplolepis
Figites
Chalcis
Cynips
Cleptes
Elampus
Chrysis
Hedychrum
Formica
Mutilla
Myrmosa
Tiphia
Sapyga
Pompilus
Scolia
Methoca
Sphex
Philanthus
Crabro
Pemphredon
Vespa
Colletes
Dasypoda
Andrena
Apis

Entomology,

A SYSTEM

Class.	Subclass.	Legio
Cl. 1. Crustacea	S C 1 Entomostraca	.....

this order is placed by Linne with the

S. 1 Subulic

S. 2 Filicor

O. 12 Neuroptera

1 & 12 form
a 4th order
optera

S. 1 Terebrantia

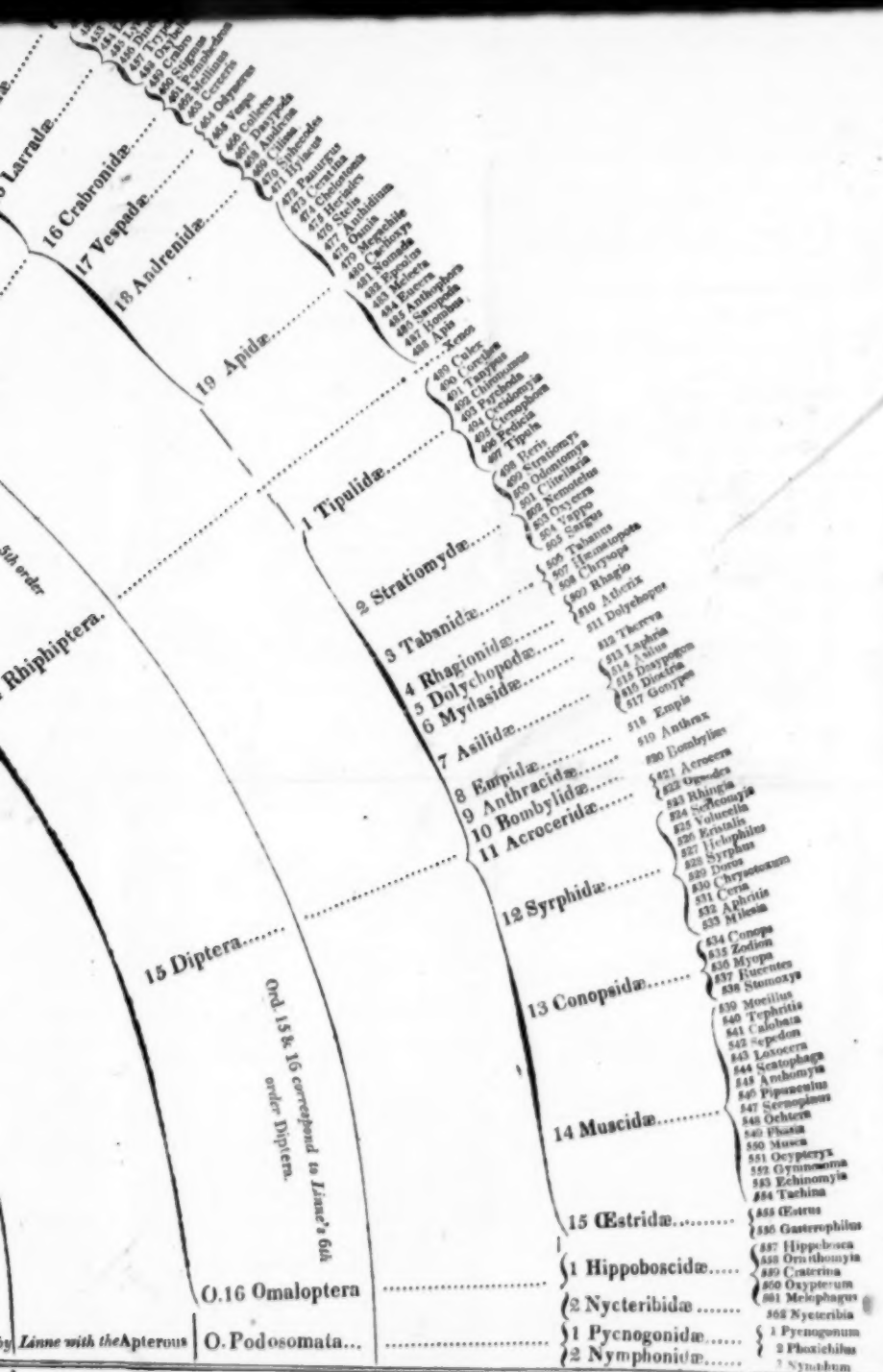
4
5 I
6 Di
7 Cyn
8 Chry
9 Formica
10 Mutillad
11 Scoliadæ
12 Sapigydæ
13 Pompilidæ.....
14 Sphecidæ.....
15 Larradæ.....
16 Crabronidæ...
17 Vespad
18

S. 2 Aculeata.....

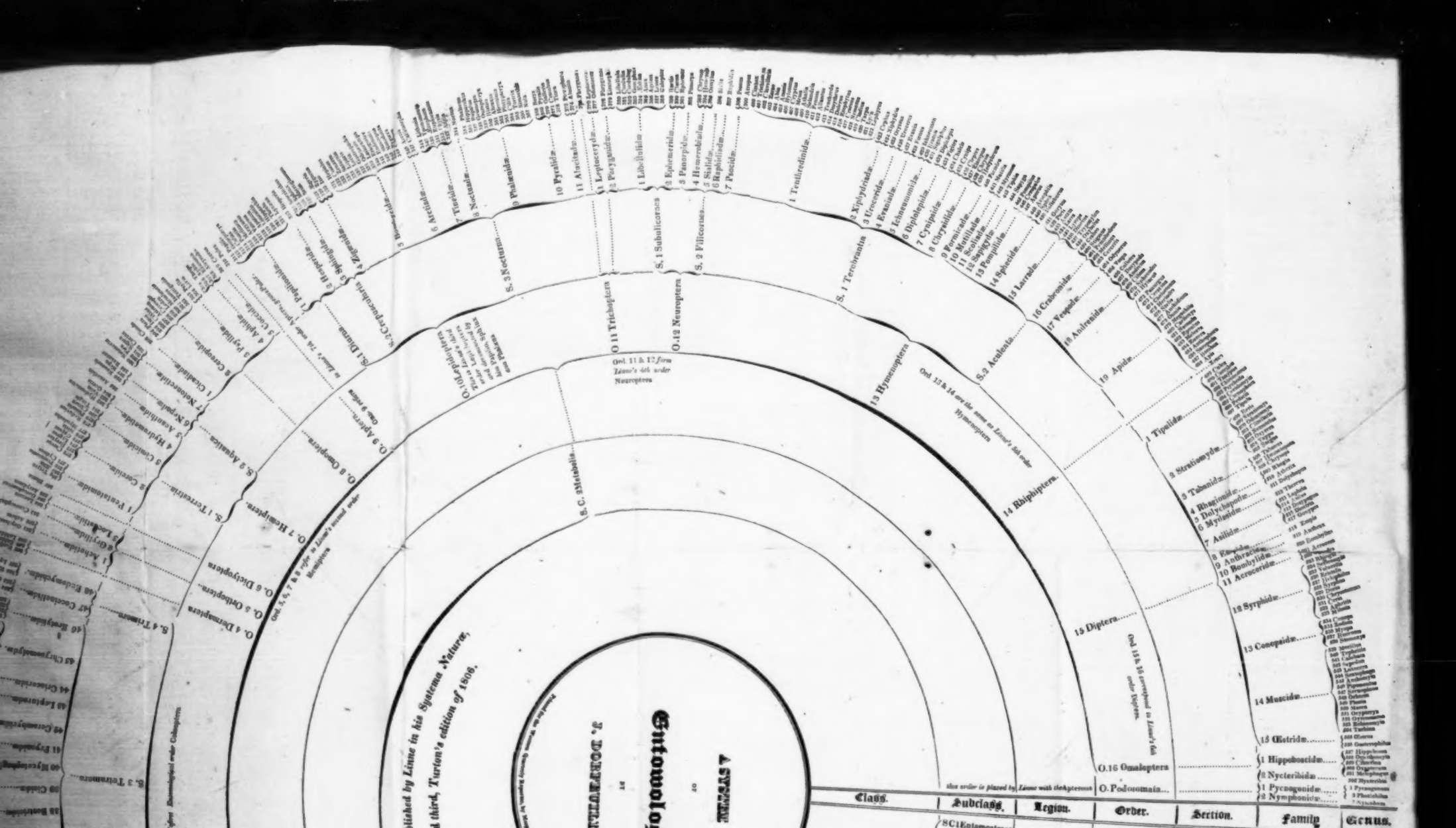
13 Hymenoptera

Ord. 13 & 14 are the same as Linne's 5th order Hymenoptera

14 Rhiphiptera.



Legion.	Order.	Section.	Family	Genus.
				1 Apus 2 Caligus 3 Pandarus 4 Anthosoma 5 Daphnia


Entomology
A SYSTEMATIC ARRANGEMENT
Published by Linne in his Systema Naturæ,
third, Turton's edition of 1806.
Class.
Subclass.
Legion.
Order.
Section.
Family
Genus.
Class 6 Insecta
S.C. Metabola
S.C. Apterata
S.C. Epipleoptera
S.C. Exapterata
S.C. Pupipara
S. 1 Subulicornes
S. 2 Filicornes
S. 3 Nocturna
S. 1 Terebrantia
S. 2 Aculeata
S. 1 Trichoptera
S. 2 Lepidoptera
S. 1 Diptera
S. 2 Aphaniptera
S. 3 Aptera
S. 1 Tetraptera
S. 2 Heteroptera
S. 3 Aptera
S. 4 Dermaptera
S. 5 Orthoptera
S. 6 Dictyoptera
S. 7 Hemiptera
S. 8 Coleoptera
S. 3 Tetramera
S. 4 Trimera
O. 10 Epipleoptera
O. 11 Trichoptera
O. 12 Neuroptera
O. 13 Hymenoptera
O. 14 Rhiphiptera
O. 15 Diptera
O. 16 Omalopters
O. Podocomata
1 Libellulida
2 Ephemerida
3 Panorpida
4 Hemerobiada
5 Sialida
6 Raphidiada
7 Psocida
8 Perlida
9 Phasmida
10 Pyrrhocoridæ
11 Alacridæ
1 Leptocerydæ
2 Phryganidæ
1 Tentredinidæ
2 Xiphydriadæ
3 Urocerida
4 Evaniadæ
5 Ichneumonidæ
6 Diplolepidæ
7 Cynipidæ
8 Chrysidæ
9 Formicidæ
10 Mutillidæ
11 Scoliadæ
12 Sapygidæ
13 Pompilidæ
14 Sphecidæ
15 Larridæ
16 Crabronidæ
17 Vespidæ
18 Andrenidæ
19 Apidæ
1 Tipulidæ
2 Stratiomydæ
3 Tabanidæ
4 Rhagionidæ
5 Dolychopodæ
6 Mydaidæ
7 Asilidæ
8 Empidæ
9 Anthracidæ
10 Bombylidæ
11 Acroceridæ
12 Syrphidæ
13 Conopidæ
14 Muscidæ
15 Œstridæ
1 Hippoboscidæ
2 Nycteribiidæ
1 Pycnogonidæ
2 Nymphonidæ
Ord. 5, 6, 7 & 8 refer to Linne's second order Hemiptera
Ord. 11 & 12 form Linne's 4th order Neuroptera
Ord. 13 & 14 are the same as Linne's 5th order Hymenoptera
Ord. 15 & 16 correspond to Linne's 6th order Diptera.
this order is placed by Linne with the Apterous

A SYSTEM

OF

ntowology,

BY

DORFEUILLE.

Class 5 Insecta. This class alone refers to the seven different orders

Class b. Insecta, volumes second

established by Linne &

and Gmel, Latreille's

Cl. 1. Crustacea.

Cl. 2. Myriapoda

Cl. 3. Arachnoida

Cl. 4. Acari

Class. | Subclass. | Legion. | Order. | Section. | Family. | Genus.

Linne in the system Nature placed all genera Monoculus

the Crustacea amongst the aptherous Insects, in the Classes, and Orders.

Ord. 1 Brachyura.

2 Macroura

Lec. 1 Polyphaga.

3 Edriophthalma.

2 Malacostraca.

S.C. 1 Entomostraca

the order is placed by Linne with Aptera

Ly Linne, these animals were arranged with Insects, in the O. Apera

Linne arranged these animals with aptera in the order Aptera

Linne disarranged

these animals Acarus & in the order Aptera

1 Chilognatha

2 Syngnatha

1 Polymerosomata

2 Dymerosomata

Hysterina, and placed them

1 Thysanura

2 Anaplura

Linne placed the animals belonging to these two orders in his order Aptera and denominated them Lepisma, Podura and Podicipes.

S.C. 1 Ametabolia

Sec. 1 Pentamera.

O. 2 Coleoptera

S. 2 Heteromera.

S. 3 Tetramera.

1 Cerytidæ.
2 Pertunidæ.
3 Cancridæ
4 Pilumnidæ.
5 Oxyrhynchidæ.
6 Maiadæ.
7 Lithodinidæ.
8 Macropodidæ.
9 Leucosiadæ.
1 Paguridæ.
2 Pylluridæ.
3 Galatæidæ.
4 Astacidæ.
5 Palæmonidæ.
6 Nebaliadæ &c.
1 Peræopodæ.
2 Gammaridæ.
3 Caprellidæ.
4 Idoteidæ.
5 Anthuridæ.
6 Cymothoadæ.
7 Aperidiadæ.
8 Asellidæ.
9 Ligiadæ.
10 Oniscidæ.
Genera.
1 Julidæ.
2 Polyzonidæ.
3 Sculopendridæ.
4 Geophilidæ.
1 Scorpionidæ.
2 Phalangidæ.
1 Araneadæ.
1 Trombidiadæ.
2 Gammasidæ.
3 Acaridæ.
4 Ixodidæ.
5 Cheyletidæ.
6 Hydrachnadæ.
1 Leptasidæ.
2 Poduridæ.
1 Pediculidæ.
2 Nirmidæ.
1 Cicindelidæ.
2 Carabidæ.
3 Ditiscidæ.
4 Gyrinidæ.
5 Buprestidæ.
6 Elateridæ.
7 Telephoridæ.
8 Melyridæ.
9 Tillidæ.
10 Silphidæ.
11 Staphylinidæ.
12 Psalaphidæ.
13 Scydmenidæ.
14 Ptinidæ.
15 Dermestidæ.
16 Byrrhidæ.
17 Histeridæ.
18 Parnidæ.
19 Heleophoridæ.
20 Hydrophilidæ.
21 Sphæridiadæ.
22 Copridæ.
23 Aphodiidæ.
24 Geotrupidæ.
25 Melolonthidæ.
26 Lucanidæ.
27 Buprestidæ.
28 Trachelidæ.
29 Rhipiphoridæ.
30 Nycteribidæ.
31 Pycnogonidæ.
32 Nymphonidæ.

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ARTICLE I.

MEDICAL DUTIES.

THE limits of a single essay being entirely too restricted to allow even a cursory glance at the different topicks presented by our theme, we shall, on this occasion, invite the attention of our readers to the consideration of the duties which should be reciprocally performed by preceptors and pupils. These duties are of vast importance to the individuals immediately and relatively concerned, to the profession in particular, and to society generally. If it be a fact, that they are not attended to as they should be; that they are often neglected or undervalued; that the results produced by such remissness, are the most serious injuries to society; that the character of the pupil is in a great measure dependent on the habits he forms and the opportunities he improves, it will be universally acknowledged that this subject demands and should receive the earnest attention of such as undertake the instruction of young men destined for the practice of Medicine.

To spend a certain part of the day in a physician's office; to be allowed the privilege of reading such books as chance may have thrown together or fancy may select; to compound drugs

or put up prescriptions, are by a vast number thought to be all that is necessary to constitute the study of medicine. If, in addition to this, the preceptor should occasionally send the pupil to see some poor patient in a dark night or stormy day, or, for the sake of a companion on a lonely road, he takes him to visit one at a distance, he is thought to enjoy superior advantages. Unfortunately it is too often the case, that when he is sent alone he is merely the bearer of medicines or directions, or when he accompanies his preceptor his presence is dispensed with when they arrive at their destination. In the ordinary mode of private medical tuition, a young man must be blessed with uncommon talents if he is capable of assuming the task of prescribing for a patient with correctness during the three first years of his studies; as these are generally pursued in so vague, unsatisfactory and desultory a manner as to be productive of very little fruit.

Many of those who assume the duties of preceptors are apparently ignorant of the weight of responsibility which attaches to them. They seem to be unconscious that they are answerable for all the injurious consequences which flow from habits of study which are formed in the manner referred to; and they appear equally ignorant of the necessity for attending to the method which should be adopted by those under their tuition in order to arrive at any useful conclusion. A very slight reflection would suffice to convince them of the importance of regularity and orderly progression in the acquirement of a science whose elementary principles are deduced from such an immensity of facts, and the utter impossibility of usefully applying these to practice unless the mind is able to draw upon its resources with correctness and facility. If the student enter the office of his preceptor, and commence his efforts in an improper way, as often happens, he is apt to acquire a disgust towards his books or profession; or to remain ever after, under the influence of a mental bias, formed at a time when he is least qualified to judge correctly. If he be permitted to devote himself to one collateral to the exclusion of the rest, when his attention is required to the others, he finds his task irksome, and his study is a painful labour. Should he be allowed or encouraged to dwell on the mere theories and speculations of the authors read, he may, in the ardour of his youthful vanity,

be led to enjoy the triumph of refuting them or substituting notions of his own, until his mind, spurning the tardy steps of those who deem facts of more consequence than opinions, yields to the dominion of his imagination, and he soars till he is lost in the void of conjectural speculation.

But the worst evil to which a student is exposed, when not properly attended to, is the formation of a habit of desultory reading. He is thus suffered to wander from one department to another, from book to book, from facts relating to one subject to the philosophy pertaining to something else, and, as the principles which should govern his future conduct are only to be deduced from a careful arrangement of facts, his mind is destitute of the support and direction which these would afford. However much knowledge he may gain in this way, it is thrown together without relation or connection, a mere aggregation of scraps, of which no use can be made, unless to convince his friends by his conversation that he has read much and learned little. This is not the whole of the evil. Desultory habits of study lead to desultory habits of thought and action, and he who is suffered to learn our profession in that way will find himself wofully deficient when called on in those great emergencies which demand the promptest exertions and the most collected and energetick exercise of mental power. While such a man hesitates and doubts as to the mode he should pursue, is at a loss how to concentrate his thoughts on the case before him, his patient may expire, or the confidence of those around him be weakened or destroyed.

One of the duties which most imperiously demands the regard of the preceptor, is the proper direction of his pupil's studies, when he begins his course of reading; to guard him against the acquisition of habits capable of exercising the most prejudicial influence on his future practice, usefulness and character in society. If he be not taught that the object of all his study, is to enable him to act correctly in his profession, when he begins he may attach to the mere act of *having read* books, a value and importance, to which it is by no means entitled. Thus men often seem to demand a sort of homage, because they *have read* Homer, Virgil, or Cicero, of whom they remember nothing; instead of convincing us, by the sublimity of their modes of thought, the beauty of their language, or the

eloquence of their conversation, that they deserve praise for *having learned* of those great teachers.

As it is very difficult for a student to distinguish between what is positively useful, and what is injurious or irrellative in his books, it is the duty of the preceptor to guard him against the latter, as well as to point out the excellence of the former. In this way, he will soon learn how to select for himself, and by having a caution in the first instance, against errors and imperfections in his author, he will not be in danger of injury from the fascinations of theory, or the force of prejudice. He should be equally guarded against the folly of striving to read a great deal in a given time; as he should be taught to measure his improvement by the expansion of his intellect, rather than by the number of pages he has turned over. This, he would be sooner qualified to judge of, if the preceptor would take the pains to examine him on the subject of his reading, and by judicious observation fix in his mind the most important facts, or the most valuable inductions therefrom.

It is true, that parents and guardians are accessory to many of the injuries inflicted on the profession and on society. They often determine that a young man shall study medicine, without any regard to the talents he is possessed of. When there is no proportion to be observed between the talents of the pupil and the extent and importance of the studies, the disagreeable necessity is imposed on the preceptor, of advising him to relinquish the pursuit, or he is permitted to "drag his slow length along," to the detriment of himself and to the injury of all.—Add to this, that either from the want of means to continue him long enough at his studies, or from the vain desire of soon having him called "Doctor," parents and guardians are often unwilling to allow more than one or two years for the acquisition of a medical education; to qualify him for a profession which is an aggregate of almost all human knowledge, and which, in its extent of relations and duties, may be justly said to reach "from Earth to Heaven."

How arduous is the duty, and how weighty the responsibility imposed on such as undertake the instruction of those intended for the profession of medicine! It does not seem wonderful that our art has been stigmatized as "conjectural," when we remark how few have been conscientiously educated to discharge its

duties. That much improvement has been made within a few years, is true; but the degree of improvement, when compared with remaining defects, is very small indeed. Prompted by a fervent wish to promote the interests of our profession and benefit society, we have now endeavored to excite their attention to this important subject, and we hope hereafter, to present some observations in continuation of the same.

ARTICLE II.

MEDICAL JURISPRUDENCE.

Translated from the French.

PULMONARY DOCIMASY.

To determine whether an infant has lived after its birth, is a problem of which the science of medicine alone can give the solution to the judicial tribunals, which require it principally in two cases; the one, that of infanticide which it is not allowable to admit unless proof be given of the life of the infant after its birth; the other relates to the right of inheritance which cannot be admitted but in a case where the subject has been proved capable of life.

Impressed with the great importance of the means employed in medicine to enlighten magistrates upon such delicate questions, the most illustrious Medico-jurists have specially directed their attention to the different processes employed for this purpose; but in proportion as philosophic doubts have been introduced into medical science, the ancient opinions favorable to the validity of inferences drawn from the state of the lungs, have been combatted, modified or restricted.

No subject of Medical Jurisprudence has given rise to more numerous and more lively discussions, and (especially within a few years past) the consequences which were formerly supposed to follow necessarily from the experiments of which I am about to treat, have been so much contested that at first sight we might be tempted to exclude them from Medical Jurisprudence. We shall see, nevertheless, that in this, as in every thing else, a just medium is to be preferred, and if Pulmonary Docimasy is not as infallible as was formerly pretended, there nevertheless are a

great many cases in which, if properly performed and duly appreciated, it may afford much light.

Physiological theory upon which Pulmonory Docimasy is founded.—As long as the fœtus is in the womb, it cannot respire, and the the lungs perform but a feeble part in the sanguineous circulation; but from the moment when the communication between the mother and the infant ceases, respiration becomes an imperious necessity, an indispensable condition of the preservation of its existence, so that life and respiration must be considered by the medico-jurist as inseparable, in all cases, in which, as in that of infanticide, the tribunals can have regard solely to animal life, and not to organic life alone. Consequently, every thing in the corpse of a new born child which demonstrates that respiration has taken place, proves also, as I have already said, that there was life after the birth: and it is upon this principle that Pulmonary Docimasy is founded, which perhaps it would be better to term *proof of respiration*, since the experiments and observations of which it consists, are not confined, as we shall see below, to the proof of certain modifications which this function causes in the lungs, but also includes those which appear in the other parts that concur in the accomplishment of this act, or which are influenced by it.

In fact the changes caused by respiration in the organization of all mammiferous animals, are not confined solely to lessening the specific gravity of the lungs by the introduction of air into their cells, or to the augmentation of their absolute weight relative to that of the whole body, an augmentation occasioned by the access of blood into the pulmonary vessels: other phenomena no less striking, follow the act of respiration; these result not only from the new course of the sanguineous circulation, but also from the changes of situation, of volume and of surface caused by respiration in all the organs which concur in effecting it. Thus after it is effected, the lungs which were previously withered, (apparently) of a reddish colour, and occupying but a small space at the bottom of the thorax, fill it entirely and cover more or less the pericardium; their colour becomes more clear and more or less pale, according to the degree of sanguineous repletion of the vessels; the cells of the lungs are filled with air and give to that organ an emphysematous aspect, whilst its substance is compact and almost like

that of the liver, or rather that of the *spleen*. The blood in the vessels of the lungs becomes frothy; the thorax instead of being flat, as before, is rounded, the diaphragm having been depressed by the inspirations; its tendinous centre projects a less distance upwards into the thorax; finally the foramen ovale is shut up and at length effaced entirely; the arterial canal withers and is obliterated, the same phenomenon takes place in the venous canal, which before respiration carried a portion of the blood from the umbilical vein to the vena cava. However the three last circumstances are not observed immediately after birth, as a certain length of time is necessary to produce them; but their existence well characterised, is a sure proof that respiration has taken place.

Besides these changes which distinguish the act of respiration, there are others more indirect, or less constant, but which nevertheless, when they coincide with the facts just mentioned, may in certain cases complete the inductions tending to establish the fact that a fœtus has respired after its birth: I mean the withering of the umbilical cord, and every sign which indicates that fœcal and urinary secretions have been effected.

Description of the method required by the above statements to prove that respiration has taken place after the birth.—It is upon these different charges that many methods for proving particularly the state of the lungs have been founded, for the purpose of determining whether an infant has respired; but whichever of them may be chosen, it is necessary, before having recourse to it, to examine the thorax and see whether it is raised and rounded or flat as if compressed. After opening the thoracick cavity, which should be done with caution, so as not to wound or derange any of the parts which it incloses, their position should be carefully remarked; especially the colour, the volume, and the situation of the lungs; whether they are shrivelled and occupy a small space, or dilated and fill the cavity of the breast; and how far they cover the pericardium. It should also be seen whether the interior of the thorax presents any pathological symptom. The value of these different enquiries will be shewn in another place.

Description of Hydrostatick Pulmonary Docimasy.—Hydrostatick Pulmonary Docimasy is the most ancient of the means I am about to describe, as some indications of it have been given

by Galen. (*De usu part. c. h. l. iv. c. vi.*) They however were neglected until towards the year 1664, when Thomas Bartholim and Jan Swammerdam drew them from oblivion. It is then to them that the invention of Hydrostatick Docimasy of the lungs is due; but nevertheles it was not applied in cases of Medical Jurisprudence until 1682, when it was resorted to by J. Schreger.

To make this experiment, the lungs with the heart are taken from the thoracick cavity; the windpipe is divided by making a section at the place where it is inserted. Care must be taken to pass a ligature round the great vascular trunks, and after having examined the blood which may be found externally upon the lungs, they are to be placed gently in a vase filled with water large enough to allow them to float freely. This vessel should be deep enough to contain one foot of water, in order that the column of liquid may be proportioned to the volume as well as the weight of the lungs and heart. The water should be clean and neither warm nor very cold, and especially should have no saline particles in solution, which, by augmenting its density, might favour the floating of the lungs, and hence river water is preferable to well water. Then it must be observed whether the lungs and heart swim or sink, and whether they sink immediately or gradually. This experiment is to be repeated with the lungs separated from the heart. If one lobe of the lungs only should swim, it is important to observe which of them it is; and this same experiment should afterwards be repeated with them separately and with each lobe cut into several pieces, in order to ascertain whether any of these pieces swim or sink. In this last experiment it is essential not to confound one part with another, the fragment of the right with those of the left lobe. Finally, each of these fragments should be pressed between the fingers under water, to see whether air bubbles are disengaged, and whether, after having been thus pressed, they still swim or sink. When, for the purpose of making these experiments, the lungs are divided into many pieces, there are several circumstances which require attention, viz. whether cutting the pulmonary substance creates that crepitation which is caused by the escape of the air contained in the pulmonary cells of lungs that have respired or in which air has been introduced in any manner; whether the pulmonary vessels contain much or little blood; whether the

parenchyma of the lungs exhibits any morbid appearances whatever. The motives of the foregoing observations will be perceived of themselves or explained in the course of this article.

Description of Plocquet's experiment by the Balance.—It was in 1783 that M. Plocquet made known this experiment, which is founded on the following reasons: viz. as respiration causes a complete accession of blood into the pulmonary vessels, it follows, that, in the case of an infant who has respired, the presence of this liquid in the lungs must necessarily change the relative weight of the lungs and the whole body. M. Plocquet found, in the case of an infant which had not respired, that the weight of the body, including the lungs, was 53040 grains, that of the lungs 792 grains. Therefore the weight of the body, compared with that of the lungs, is as 67 to 1. In the case of another fœtus still born, the proportion was found to be 70 to 1; and, finally, in a third which had arrived at its full term and which had respired, it was as 70 to 2; from whence it results that respiration doubles the weight of the lungs, and that the weight of those that have not respired is to the weight of the whole body as 1 to 70, and the proportion in those that have respired is as 2 to 70 or 1 to 35. The experiment by the balance then consists in weighing the body of the fœtus before it is opened and afterwards the lungs by themselves, and comparing the weight of the body with that of the lungs.

Description of Plocquet's experiment with the Plummet.—To render the preceding experiment more conclusive, M. Plocquet advises to add another in order to learn whether the results of both methods will agree in proving that respiration has not taken place after the birth. This second experiment is founded upon the descent of the diaphragm toward the abdominal cavity by the effect of the respiration. Thus, in a fœtus that has not respired, the inferior surface of the muscular partition which separates the breast from the abdomen, is much more convex than in one that has respired. According to M. P. it would therefore be necessary to determine, as exactly as possible, the degree of the convexity, for which he prescribes the following rules: the abdomen is first to be opened, and after ascertaining whether it presents any thing remarkable, the viscera are to be cautiously extracted for the purpose of determining and measuring the situation of the diaphragm.

1st. To this end it is to be ascertained by the aid of a plummet line from the sternum, to what point in the thorax and to which of the ribs the tendinous centre of the diaphragm corresponds: and when by many experiments this point is known in infants that have not respired, and to what other point respiration forces the diaphragm towards the lower part, we shall be furnished with data which may throw much light upon different cases where it is to be determined whether respiration has taken place after the birth.

2d. An experiment must be made whether the diaphragm can or cannot be forced further forward towards the breast. In case it cannot, the absence of respiration after the birth would be presumed: on the contrary, in case it could, we might be permitted to believe that the infant had respired. (See Plocquet *Commentarius medicus in processus criminales.*)

Description of the experiments of Daniel.—This author (Ch. Fr. Daniel *Commentatio de infantum nuper natorum umbilico et pulmonibus; Halæ* 1780,) founds his experiment upon the increase of circumference which the thorax and the lungs acquire by respiration, as well as the increased weight of the latter in consequence of this act. He proposes then, for one part, to measure the circumference of the thorax with a cord, and to compare it with the height of the dorsal portion of the vertebræ, observing their distance from the sternum: for another part he advises the following experiment:

Every solid body plunged in any liquid whatsoever, displaces as much of that liquid as the space it occupies. The quantity of liquid displaced varies then in proportion to the volume of the solid body, and both in this respect are equal. Now, as the liquid displaced rises in the vessel which contains it, a conclusion may be drawn from the greater or less elevation of the fluid as to the volume of the solid body that has been plunged into it, so that by fixing a scale to the vase, the volume of the lungs may be determined numerically. As the air which inspiration introduces into the lungs and which respiration does not entirely drive out, necessarily augments their volume, they will of course displace more of the liquid and raise it higher in the vase when respiration has taken place than when it has not. Consequently, when upon this principle the relation between lungs that have respired and those that

have not, has been established, it will be seen by plunging the lungs into a liquid whether they contain air or not. Nevertheless, as the presence of air in the lungs does not warrant the positive conclusion that an infant has respired, the experiment just described is not sufficient unless supported by another proof. It is known that every solid body plunged into a liquid of a less specifick gravity than itself, loses in weight an amount equal to the weight of the same volume of the liquid, and that the weight of the liquid is augmented in the same proportion. Consequently bodies of the same weight but of different volume, plunged into the same liquid, must experience a difference in their loss of weight, and this loss will be the greatest in the most voluminous solid body, and the augmentation of the weight of the liquid will also be greater. Now, as the lungs of an infant who has respired have a greater volume than those of one that has not, the former will lose more of their weight in the liquid than the latter. It is then to be determined by comparing fœtuses which have respired with those that have not, and again with those that have been inflated with air, or, where it is developed by putrefaction, what is the relation in these different cases between the loss of the specifick gravity of the lungs. Thus a judgment may be formed by comparison whether respiration has been effected or not. For example, let the diminution of weight observed in lungs distended by respiration be - - - 5

The diminution in lungs inflated after death - - -	4
" " distended by putrefaction, - - - -	2½
" " of infants born dead, - - -	2

On the other hand—

The specifick gravity of the lungs of infants still born, - -	6
" " " " dead by hemorrhage,	5
" " " " in a state of putrefaction,	5½
" " " " inflated after death,	5½
" " " " that have respired,	8
" " " " dead by asphyxia,	9

It will be found that the volume of lungs which have not been augmented by inflation or putrefaction will be as to their specifick gravity compared with those of infants still born as - - - - - 2 to 6

Those of infants dead by hemorrhage, - - -	2 to 5
" lungs in a state of putrefaction, - -	2½ to 5½
" " inflated after death, -	4 to 6 or 4 to 5½
" " which have respired, - - -	5 to 8
" " of infants dead by asphyxia, -	5 to 9

To make this experiment it is necessary to proceed in the following manner: the lungs, with the heart, must be withdrawn from the thorax and a ligature made round the great vessels to keep out the water. The lungs and heart are then to be suspended to a very accurate balance which is put in equilibrium in order to ascertain the absolute weight of these parts; then, without taking them from the balance, they are to be plunged into a vase of water sufficiently deep to determine their loss of weight. The heart is then to be separated from the lungs, and the latter submerged and their weight deducted from that of the heart. But, as lungs distended by air will not sink, it is necessary to affix to them some heavy body, the weight of which being known must be deducted from that of the lungs. Daniel advises that a small basket of silver thread be made use of for this purpose, in which they may be placed. He advises also, that on the inner side of the vase containing the water a glass tube should be placed, on which a graduated scale should indicate the elevation of the water, so that the two experiments may be made at the same time.

Appreciation of the different means used to ascertain whether respiration has taken place after the birth, and of the inductions which may be drawn from the convexity of the thorax.—Daniel, as we have seen above, considers this sign of great importance, as he regards the convexity of the thorax as a certain proof that respiration has taken place. Some medico-jurists have even pretended that by long habit the faculty of distinguishing whether an infant has breathed or not, may be acquired by external inspection alone. (Olberg, *De docimasia hydrostatica.*) But it is easy to conceive how deceitful such experience may be; for besides that in general it is necessary to be distrustful in those cases in which our senses permit us to judge only by approximation, we do not in this point obtain conclusive observations independently of the doubts occasioned by the frequent differences arising from the variety in the formation of the breasts of different individuals. But however uncertain this sign may be when observed by itself, it may nevertheless serve to complete the proofs which militate for or against the reality of respiration.

Appreciation of the inductions which may be drawn from the situation and volume of the lungs.—The opinion generally re-

ceived in legal medicine, that in an infant who has respired the lungs appear dilated and sufficiently voluminous to cover the pericardium, is founded upon observation of subjects in which complete respiration is prolonged for a certain period. But it results from the observations of many anatomists and particularly M. Schmitt, that in the case of infants who have perished soon after their birth, even when respiration has been free, that the pericardium has not been covered entirely by the lungs. In a majority of cases it is so on the right side; in a very small number of others it is almost completely covered; but in this case the infant must have respired some days. It is therefore proper to be more precise respecting the phenomenon in question than most writers on Medical Jurisprudence have been, and to adopt, in regard to it, the principles of those authors only who have properly treated the subject. One of them (Daniel, in the work quoted, page 86,) thus expresses himself: *Ejus enim qui non respiravit, pulmones collapsi ad dorsi vertebras conspiciuntur, pectoris cavum non omnino explent* NEC PERICARDIUM ADEO TEGUNT: *ejus vero qui respiravit, pulmones pectoris cavum implent,* MAGISQUE PERICARDIUM ABSCONDUNT. The other (M. Jikora, *Conspectus medicinæ legalis, Prague et Dresden,* 1792, § v.) remarks as follows: *Respiraveritne infans natus pulmones docere possunt, si nimirum ii densi versus dorsum retracti . . . nec expansi sint,* AC PERICARDIUM A PULMONE SINISTRO HAUD TECTUM SIT, SED NUDUM CONSPICITUR. *Tunc in fœtu nullam a partu respirationem adfuisse concludendum. Contra ubi uterque pulmo expansus pectoris cavitates replevit atque* A SUPERIORE SINISTRA PARTE *pericardio suo modo tectum est . . . tunc fœtum a partu respirasse adeoque vixisse constat.* In fact, according to the experiments of M. Schmitt, the difference here noted is only the greatest and the least between infants that have respired and those that have not. The right side of the pericardium is, by this rule, more covered than the opposite side, because the right lobe of the lungs is a little more voluminous than the left, and respiration is established in it generally sooner and with more energy, a circumstance which Craanen, Metzger, and especially Portal, had already observed in their researches. Nevertheless this rule is not without exceptions, very rare indeed, but sufficient to prevent it from being established as a principle, and to prevent the absence or reality of respiration after the birth from being exclusively established upon this phenomenon.

The space which the lungs occupy in the thorax is in general subordinate to their volume, and although the augmentation of the latter may be incontestably in proportion to the degree of expansion experienced by the pulmonary organ, there are still variations in this respect which must not be lost sight of. Thus, in four experiments by M. Schmitt, the lungs of a fœtus which had not respired, formed a volume which filled the whole thoracick cavity. In another case, on the contrary, and in which the infant had respired for thirty-six hours, the lungs, although filled with air, were so small and occupied so little space that they could not at first be discovered.

Appreciation of inductions from the colour of the lungs.—The observations of M. M. Chaussier and Schmitt, prove that if the colour of those lungs that have not respired be generally brown, or more or less violet, and if it be rose red when respiration has taken place, then unlimited confidence must be placed in this sign. No organ is more susceptible than the lungs of various shades of colour, and as nothing is more difficult to describe than those different shades, it follows that, a person must have observed many cases and have acquired a habit of distinguishing them, in order to judge correctly respecting lungs, whose tints may vary not only according to different degrees of respiration, but also by the influence of an infinite number of causes internal as well as external, which are of greater or less importance. Thus a person may easily be convinced that the colour of the pulmonary surface, especially when it is very deep, changes in a few minutes after opening the thorax, and that it becomes more clear by the effect of contact with atmospheric air alone. According to the remarks of M. Schmitt, and which I have had occasion to verify, we sometimes find the lungs of children still born, of a colour so little resembling what is usual in such cases, that at first, the most experienced person might be deceived by them. This peculiarity is less rare in proportion as the fœtuses are farther from their full term; and then another circumstance frequently happens which adds to the illusion: this is the volume of the lungs being proportionally greater in abortions than in infants at their full term. It is known on the other hand, that infants destroyed by suffocation, or whose thoracick cavity contains a sanguineous effusion, sometimes have the lungs of a brown colour, which at first sight

might cause a presumption that respiration has not taken place. These different exceptions however are not common, and if the colour of the lungs, considered independent of its relation to other proofs that the lungs have or have not been penetrated by air, should not be of any value, it nevertheless becomes conclusive, where it agrees with them.

Appreciation of the inductions which may be drawn from the state of the arterial canal and of the foramen ovale, of the venous canal and of the umbilical cord.—The changes which these different parts experience by respiration, as I have already said, do not manifest themselves, until some days after it has taken place, and as the crime of infanticide is commonly committed at the time of the birth, it follows that there are few cases in which those charges can be consulted, which, when they exist, are the best proof that respiration has been effected.

Appreciation of the inductions to be drawn from the state of the intestines and the bladder.—Respiration by forcing the diaphragm and consequently the abdominal viscera downwards, promotes evacuation from the intestines and the bladder, and it is from their state of fullness or vacuity, that some have been willing to infer the existence or absence of respiration after the birth.—But nothing is more equivocal than this sign, because an infinite number of accidental causes may determine before the birth, the evacuation of the meconium and urine, in infants born either dead or alive, or retard these excretions in a living child.—Nevertheless it will always be well to ascertain these different states, because they may be accessory proofs when they agree with others.

Appreciation of the ancient hydrostatick proof.—One of the first objections raised against the validity of this proof is, *that it is not impossible for an infant to respire before its birth and afterwards to perish during birth.* If the justly contested phenomenon, the *vagitus uterin*, be understood by respiration before birth, there has been no observation worthy of credit which attests that a fœtus, while inclosed in the membranes, has ever cried, and consequently respired; and the analogy of the chicken, whose cry is heard while enclosed in the shell, an analogy upon which Needham relies, can have no weight. The shell, exceedingly porous, does not oppose such difficulties to the introduction of external air as the membranes which surround the human fœtus;

the chicken, besides, may be considered an isolated being, having no communication with its mother, and may experience a real want of respiration when it is ready to pierce the shell; a want which cannot be felt by mammiferous animals.

The objection becomes very different in point of importance, if by respiration before birth, be understood a case in which after the rupture of the membranes, the head of the fœtus, impelled by the pains of the mother more or less towards the opening of the sexual parts, remains in this position with the mouth and nose exposed to immediate contact with the external air, a sufficient time for the act of respiration.

The influence of this supposition upon the doctrine of pulmonary docimasy is so incontestable, that of late years, nothing has been neglected to ascertain and manifest the fact in question. Osiander asserts, that after the flow of the liquor amnios, the fœtus may breathe and cry when its mouth is placed near the orifice of the womb; but hitherto I know of no fact which proves the truth of this assertion, which on any other occasion I should have rejected as inadmissible, whilst at present the experiments of Doctor Beclard, principal anatomist of the faculty of medicine in Paris, compel me to remain in doubt, at least, upon this subject. The physician whom I have named, has remarked, that upon opening a pregnant animal, and after having made an incision cautiously in the uterus, there is distinctly seen, through the membranes of the amnios, respiratory movements, consisting of the opening of the nostrils and at the same time the parietes of the thorax are raised. The movements are repeated at intervals sufficiently regular and equal. They are in general slower than the respiratory movements of extra uterin life in the same animals. They become longer and more frequent in proportion as, by the progressive contraction of the womb, the circulation between the mother and fœtus becomes more imperfect. In general they very much resemble those rare and profound respiratory movements made by infants born in a state of weakness and imperfect respiration which is called *asphyxia of new born infants*. Does not this observation in fact admit the possibility of that of Osiander under the conditions indicated by the latter?

Can the fœtus, whose head only has passed the vulva, respire

while the rest of its body continues shut up in the vagina and uterus? This question, no less important than the other, has become the subject of violent disputes among medico-jurists, among whom it will be sufficient to cite Camper, Rœderer, Wrisberg, Meckel, Daniel, and Metzger: these have thought it their duty to decide in the negative, whilst others, viz. Bolin, Haller, Morgagni, Teichmeyer, Plocquet, Rose, and Schmittmuller, are for the affirmative; that is to say, that in such cases they admit generally the possibility of an imperfect respiration.

In my memoir upon Pulmonary Docimasy, published in 1808, I thought proper to lean towards the negative, and founded my opinion on the following reasons: supposing a fœtus whose head only has passed the vulva under an actual necessity of respiration, how can it overcome the resistance opposed by the sexual parts of the mother to the thorax and the muscles which they enclose? Such an excessive inclosure, either does or does not exist; under the first supposition the obstacle to respiration is insurmountable, admitting even that the infant may make some efforts, they must be too weak and feeble to cause the organick phenomena which depend on a perfect respiration. This reasoning is nearly that of Camper, who, besides, affirms that in his extensive practice he has never met with a single fact of the kind. He attributes those which are supposed to have been observed, to the necessity which accoucheurs have been under of operating under a covering for the sake of decency, from whence it has resulted that they judged from what they supposed that they perceived rather than from what they saw. M. Schmitt attacks the theory of Camper, not only in relation to theory, but also as to facts. Who, says he, would dare to contest the reality of a phenomenon, solely on the ground that, notwithstanding frequent opportunities, it had never come within the sphere of his observation? It might rather be inferred in such a case that the phenomenon was very rare, a truth that none will deny. The impossibility of respiration before the head comes forth, an impossibility founded upon the state of constraint and confinement of the thorax as well as the abdomen, is a much stronger objection than the preceding. M. Schmitt attacks it with the arms of experience rather than those of theory. According to him, the possibility of respiration ceases in fact, when the circumstances are such

as in the preceding supposition: but is every infant whose head has passed the vulva always in a similar state of compression, and are the smallness of the genital parts of the mother and the winding up or shortness of the umbilical cord, always the exclusive causes of the stoppage of the trunk and other parts? The cessation of the pains alone is capable of producing this effect, which is still more frequently produced by a wrong position of the shoulders. In such a case why does not a fœtus full of energy, respire and cry? William Hunter, whose practice was at least as extensive as that of Camper, asserts that the fœtus can respire as soon as the head is expelled; Baudelocque is of the same opinion; and Osiander relates nine cases in which respiration took place either after the birth of the head alone, or during the passage of the thorax, although in three of these cases the umbilical cord was wound around the neck of the infant. The observations of M. Schmitt give conclusive evidence of the truth of this opinion: they are the more conclusive as being directed by him under the doubts of, and with a desire to obtain light upon, a subject of so much importance; he has made them with great attention and impartiality. These observations are eight in number, and although they all merit a place in a work like this destined to give an account of the present state of the science, and to elucidate as much as possible the points in dispute, I shall cite but three: they will suffice to fix the opinion of the reader.

"The 5th May, 1801, I assisted at an accouchment which presented no extraordinary circumstance except one, which I then observed for the first time. The infant, a male, in good health and well formed, uttered very distinct altho' weak cries before the breast and arms were disengaged.

"The 28th November, 1802, I delivered a woman of a sound and robust infant. Every thing passed naturally; but immediately after the passage of the head, the infant uttered frequent and loud cries, although the rest of the body was not born.—The accouchment was not finished until some minutes afterwards and when new pains had supervened. It was only to their absence that the interruption of the birth was to be attributed. The narrowness or resistance of the genital parts of the mother could have had no effect, since the head of the infant showed no trace of any tumour or compression, and after it

same forth, I could easily introduce my finger between the fœtus and the vagina.

"The 28th December, 1804, I delivered a young lady of distinction of her first child. The smallness, as well as the powerful pressure, of the genital parts, considerably impeded the passage of the head of the fœtus which was very large and strong. It had been out but a few instants when the child began to breathe and to cry, although the umbilical cord was wound twice around the neck. This with the largeness of the shoulders and the cessation of the pains, prevented the expulsion of the body, which was disengaged but slowly, so that the breast, the belly, and finally the feet came forth at distinct intervals. The child continued to respire during all this time, and uttered frequently a kind of cry. Many persons were witnesses of this event, among others M. de Verrig, principal physician of the armies."

If all the parts of a child except its head have come forth, can it respire when the efforts of the hand of the operator to disengage it, causes the admission of air into the vagina? This effect, admitted by some celebrated accoucheurs, has been contested by many others: among the first, Rœderer, Baudelocque, Meckel, and Osiander, are principally distinguished. The latter asserts that after having turned the child, he sustained with his right arm the body of the fœtus, which was delivered all except the head, whilst he carried his hand above the mouth to the upper jaw; that the infant then moved its shoulders, the thorax was dilated and the movements of respiration were exhibited.

Among the number of observations and experiments of M. Schmitt, there are two which seem to confirm the opinion of Osiander. These are the sixth and twenty-third; one is the case of a female fœtus born at its full term, of a vigorous mother, but with whom it was necessary to hasten the birth and thereby arrest a dangerous hæmorrhage, caused by the situation of the placenta upon the uterine orifice. The child extracted by retroversion, gave no sign of life. The state of the lungs proved that there had been an incomplete respiration; they occupied a small portion of the posterior part of the thorax, their colour was not so deep and their surface more spongy than those of infants who have not respired; placed in water they floated with and without the heart, although incompletely, as they did not rise

above the surface; the inferior lobes especially had a tendency to sink. The pulmonary substance crepitated, and a white froth, verging towards red, was expressed from the fragments. The twenty-third experiment was the case of a fœtus of eight months, of the male sex, delivered by retroversion, and which died during the operation, because the head could not be delivered but with extreme difficulty. The lungs before separation from the heart sunk, but slowly, so that the heart touched the bottom of the vase, while the lungs had a tendency to rise to the surface. The lungs without the heart also sunk, but rose again and remained in the middle of the liquid surface. The same phenemenon was exhibited by each of the lungs as well as by their lobes, except that the middle right and upper left lobes sunk slowly to the bottom and did not rise again. The consistence of the lungs was less compact than when respiration has not taken place; their colour, it is true, was hepatick, but a number of spots were remarked, especially towards the borders, which were of a clear and somewhat rosy colour. After having cut them in pieces, there was expressed from them a notable quantity of white froth; they contained a great deal of blood.

From all that has been said it results that in the present state of our knowledge, we ought to admit the possibility of a fœtus respiring before it is completely born, and that this truth applied to the respiratory proofs, whatever they may be, constitutes a restriction which should never be lost sight of, whenever conclusions are to be drawn from the phenomena which this proof exhibits, as to the respiration and absolute life after the birth.

Second objection. The lungs may float when an infant has not respired.—The causes of this phenomenon are putrefaction, artificial inflation, or even a particular emphysmatick state of the lungs.

Can putrefaction, by causing the developement of gaseous substances, lessen the specific gravity of the lungs so much as to cause them to float? This question has been involved in doubt by many observers. Fabricius and Eschenbach assert that when the lungs of a still born infant are placed in water, they naturally sink to the bottom, but if left until they putrefy, they do not fail to rise above the liquid surface. Hebenstreit

has contested the accuracy of such observations, in which, according to him, it was improper to submit the lungs to hydrostatick experiments in the same water in which they were corrupted. According to the experiments of Mayer, putrefied lungs will indeed rise above the water; but they afterwards sink and cannot float again. Pyl assures us that he has never been able to make putrefied lungs float. The experiments cited may in general be objected to, upon the ground that they have been made upon lungs isolated from the body to which they belonged, and that this circumstance constitutes a difference of condition from that which occurs in the putrid decomposition of the same organ when inclosed in the thorax. Other physicians have therefore employed a more conclusive method. In order to ascertain, says Camper, what progress putrefaction may make in an infant without causing the lungs to swim, I tried a number of experiments at Amsterdam, and have found that in infants who have died before birth, the head may be consumed by putrid decomposition, to such a degree that the least shock is sufficient to separate its bones, and also those of the extremities, and yet the lungs would not float, although putrefaction had commenced in them. This celebrated observer has made the same observation respecting the bodies of fœtuses which he had caused to be macerated three quarters of an hour.

M. Schmitt, whom, from the exactness of his observations, I consider the highest authority in the history of Pulmonary Docimasy, has made similar experiments with the same results.

It would be endless to relate, merely by abstract, the different researches which have been made upon this subject by a great number of medico-jurists, the greater part of which tend to prove that notwithstanding the most advanced state of putrid decomposition, the lungs of infants that have not respired do not float. But can we say that a phenomenon does not exist because it is extremely rare? In fact there are many medico-judicial reports, in which the floating of the lungs could only be attributed to their putridity; and lately M. R. G. H. Franck, at Posen, has by a conclusive experiment, removed all doubt on this subject. (Kritische Jarbeucher, &c. Berlin, 1806.—20 part. 1st vol. p. 307.)

Since it is proved that in certain cases, very rare indeed, and

under certain circumstances, still unknown, the lungs of those who have never respired may float by the effect of putrefaction alone, are there any means of distinguishing this effect?

Let us first remark, that, by the rule laid down, putrefaction must be very far advanced to affect the lungs, which seem less liable to it than any of the other viscera. I say *according to the rule*, because Brumer has stated a fact in which the lungs floated from this cause although the general putrefaction was not far advanced. Now, when this is advanced to a very high degree, the pulmonary proof will be placed in the same category with every other operation of the medico-jurist in similar cases. They exhibit nothing but uncertainty, and there remains for the tribunals no other resource but to find other proofs than those furnished by the dead body—such proofs as may be duly appreciated by medical ability. It remains then to treat of cases in which it is not so far advanced as to exclude the inspection of the body. In such cases the putrid decomposition seldom affects the pulmonary parenchyma at its centre, and is generally confined to its surface from whence is often seen to arise stria or series of air bubbles which are disengaged from the incisions that are made, and even from the fragments detached by the cutting instrument. This is characteristick of putrefaction, but it should be regular. There are however other more certain indications than this, and by which we can easily distinguish whether the floating of the lungs is caused by putrid decomposition.

Putrefaction lessens the specifick gravity of some of the viscera nearly in the same proportion that it lessens that of lungs which have not respired. These viscera, according to Wrisberg, are the thymoid gland, the intestines, the bladder, in a word, all the parts of which the laxity of their cellular tissue resembles that of the pulmonary organ. Now, as all these parts are susceptible of being made to float by the effect of putrefaction, it is only necessary to submit them all alike to the hydrostatick proof in order to judge from the similarity between the appearance of them and the lungs in water whether the floating of the latter is the effect of putridity. Another sign, in which nevertheless it is best not to place too much confidence inasmuch as it is not always perceived, is the crepitation, the grating, which the scalpel causes when it di-

vides the lungs of those that have respired. Putrefaction, even when it causes the lungs to float, does not prevent the production of this sound, and it is never perceived in operating upon those that have not respired.

But the most certain means of distinguishing the effects of putrefaction from those of respiration, consists in the possibility of expressing between the fingers the gazeous products of putrid fermentation. The pieces of the lungs submitted to this process which have previously floated, will sink to the bottom if they have belonged to an infant who has never respired, whilst in a contrary case they will continue to float. It must be remarked that viscera which are made to float by putrefaction, will sink in like manner after having been pressed; consequently they should always be made to furnish this sort of counter proof. We see then that the floating of the lungs caused by putrefaction, does not tend in any degree to invalidate the pulmonary proof when the diagnostick means that have been indicated are not neglected.

Artificial inflation creates a much greater difficulty in distinguishing between lungs that have respired and those that have not. What man of sensibility would not shudder at the bare idea of exposing innocence to infamy and punishment? How must the medico-jurist tremble when supposing at first sight of a fœtus that he perceives symptoms of vitality after its birth, a hasty conclusion of infanticide might cause him to reproach himself with having confounded the effects of maternal tenderness with crime? *My efforts*, might the mother say to him, *to recall my infant to life have become my accusers; to them should be attributed the phenomena that you perceive.* What a dreadful situation for an innocent mother! and what unhappy consequences for social order if this excuse be suggested only by criminal artifice!

Rœderer having denied the possibility of inflating the lungs so as to cause them to float, this opinion, (inconceivable to have proceeded from so learned a man,) although contrary to that of Bohn, Alberti, Haller, Morgagni, Lieberkuchn, &c. was adopted by some medico-jurists who, instead of verifying it, thought it much easier to find in it a motive for abridging their researches. Nothing less than the authority of Camper and the experiments taken by this great man relative to this subject, were sufficient to cause the abandonment of so great an error.

Eschenbach and some others, without contesting the fact in question, considered the fear of the errour it might occasion as vain, because they thought that a woman lying in clandestinely and without witnesses could not execute it alone, and if she were aided by another, this circumstance might easily be discovered in the course of the trial. They also considered it improbable that any person whose object was to destroy her infant should endeavour to reanimate it. The first of these suppositions is an error which Buttner has justly exposed by opposing to it a very conclusive fact, of the possibility of which M. Chaussier is equally convinced from his own extensive experience. The second is, in my opinion, better founded. In fact when mortal lesions are found on a new born child, the characters of which demonstrate that they have been inflicted on a living child, and when besides, all the other circumstances tend to prove the existence of respiration and the crime of infanticide, it appears to me hardly possible to suppose that efforts have been made by the accused to reanimate the child. Morgagni finally admits, that in a case where there is an intention to ruin an innocent mother by causing her to be suspected of infanticide, some one, after having procured her still born child, might have inflated its lungs with air.

Although medico-jurists are agreed as to the possibility of causing lungs that have not respired to float by inflation, they differ as to the manner of appreciating this fact in relation to the hydrostatick experiment. This must necessarily considerably lessen its value in the eyes of impartial men. There remains then only the hope of discovering by the peculiar characters of inflation and respiration the means of distinguishing the one from the other.

To this end, taking as a base that respiration being a vital function in which not only the lungs but also other parts participate, viz. all the osseous and muscular envelope which constitutes and bounds the thorax; that the part which these take in respiration is merely passive as in inflation; and, finally, that circulation being modified by the respiration, there must necessarily result from it these peculiar impressions which are permanent after death and do not pertain to inflation. The following are then to be considered the peculiar characteristicks of inflation: 1st, the incomplete dilation of the lungs; 2d, the

thorax not being rounded; 3d, the absence of crepitation when an incision is made in the lungs; 4th, finally and principally, the vacuity of the pulmonary bloodvessels without previous hemorrhage. The great importance of the subject requires an examination of these points separately.

M. Schmitt, whose method I shall follow in this examination, has made a series of experiments too numerous to be repeated consistently with the plan of this work, but of which the results are: 1st, that it is possible to inflate the lungs of infants still born or born in a state of asphyxia; 2d, that this inflation easily and completely succeeds when executed in a suitable manner and no mechanical obstacle is opposed to the introduction of the air; 3d, that the operation succeeds with difficulty and imperfectly or even fails totally when the respiratory ducts are clogged with mucous substances or when the experiment has not been properly made; 4th, that the expansion, the spongy state, the rose colour, and the capability of floating in inflated lungs, vary according to the degree of success of the operation, and that these properties are manifested in direct proportion to the quantity of air which has penetrated them; 5th, that when an incision is made, crepitation takes place in all inflated lungs if the inflation has been in any degree successful, and that upon compressing the lungs between the fingers, a white froth more or less bloody comes from the incisions; 6th, that the inflation always causes a rising of the thorax as well as the abdomen, and the dilatation of the breast which results from it may be appreciated after the death; 7th, that the most complete inflation cannot augment the weight of the lungs of a fœtus that has not respired to an extent sufficient to make the augmentation ponderable; that, in most cases, the proportion between the weight of lungs inflated and that of the body is similar to that of a fœtus that has not respired. These results being more or less in opposition to the generally received opinions on the subject, it will be well to explain them more clearly.

Metzger, Loder and many others, among whom may be reckoned myself, have supposed that inflation could but partially distend the lungs. "Although an artificial inflation (v. *Memoire sur la docimasie pulmonarie* p. 137 *du Manuel d'autopise cadaverique medico legale,*) may cause the lungs to float, yet I believe it very

difficult if not impossible to distend the left lobe by this method so much as to cause all the fragments that may be detached by the scalpel without exception to float." I founded my opinion upon the structure of the bronchia which prevents the air from being as easily introduced into the left as the right lobe. This difficulty is experienced in most cases as M. Schmitt has observed, but there have been some cases in which it has not existed. The 80th and 98th experiments of this physician prove that the air of inflation penetrated even to the extreme parts of the lungs. Professor Chaussier likewise assures us (*Considerations medico-legales sur Infanticide,*) that he has often seen even in infants who have respired several hours, the left lobe much dilated while the right was not at all or but partially so.

Inflated lungs, according to Metzger, not causing crepitation, this physician considered that circumstance a second method of distinguishing the effects of inflation from those of respiration; but besides that no physical reason justifies this supposition, there are also facts opposed to it, and without mentioning my own experience I am convinced that crepitation is as distinct in lungs that have been inflated as in those that have respired.

Metzger's third character of inflation is the defect of roundness of the thorax. This sign is in fact one of the most constant since M. Schmitt has observed it in all his experiments with but one exception. But even if we should admit with Loder the impossibility of inflating the lungs of a fœtus that has not respired so much as to cause a dilitation of the thorax similar to that produced by respiration, no other consequence can follow from this principle than this: viz. *the dilitation of the thorax occasioned by inflation, and that caused by respiration, exhibit only a relative difference.* Now I have elsewhere shown how difficult it is to appreciate this degree, and I will add further, that according to the observations of M. Schmitt there is but a slight dilitation of the thorax observable in infants that have imperfectly respired some time; that in some cases the lungs are completely distended without the thorax being thereby dilated; and, finally, that the dilitation of the thorax is sometimes very apparent although the lungs contain little or no air.

The best sign of distinction between the effects of inflation

and those of respiration, is unquestionably the state of the pulmonary vessels: viz. their vacuity, when this is not to be attributed to hemorrhage. Although the physiological reason for this phenomenon, as I have stated above, is incontestable, it nevertheless presents more than one species of difficulty. And, above all, what rule have we to estimate the quantity of blood contained in the lungs? Must it be occular inspection alone, that is to say, an estimate (according to Buttner,) of the quantity of blood that has flowed from the pulmonary vessels after the division of the lungs into fragments; or rather an appreciation of the state of plethora by the degree of repletion of the vessels on one hand and on the other (according to Plocquet,) by the colour of the water in which the lungs have been washed and which has afterwards been evaporated to determine the quantity of the residue? But who does not perceive how easy it is to commit errors by attaching too great importance to this manner of experimenting? What must be the quantity of pulmonary blood that is to be denominated great or small? According to the judicious remark of M. Schmitt, in such cases all depends upon the relative proportions: what appears great to one may appear small to another, because every one must judge by sight and every one sees in his own way. It is the same with respect to the inductions to be drawn from the diameter and distension of the great pulmonary vessels, since they are never found empty in fœtuses that have not respired, and therefore the only question that can arise is as to the degree.

There remains but one method of determining positively the quantity of blood that has penetrated into the lungs and thus to judge whether inflation or respiration has taken place. This method is the proof by the balance proposed by Plocquet. We shall see below what degree of confidence it deserves.

I cannot close this subject without mentioning two new observations inserted by Professor Mendel, of Breslaw, in Hufeland's Journal of Medicine, August, 1812. They are important inasmuch as they remove all doubt as to the degree of resemblance to the phenomenon which respiration leaves after death, that can be caused by inflation.

Observation 1st.—On the 9th February, 1812, M. J—— delivered a woman by the aid of the forceps. The delivery

required seventy pretty strong efforts by the accoucheur. The child, a male, was at its full term, weighed eight pounds two ounces, was twenty inches and six lines in length, and gave no other indications of life than the pulsation of the umbilical arteries and the heart. These pulsations continued more than half an hour with more or less strength, and during this time the lungs were frequently inflated with air by the mouth. In this operation care was taken to press gently the thorax in the direction of the bronchia, in this way irritating respiration in order to excite it. These attempts and also others practised in such cases, were unsuccessful. Once only these efforts produced a contraction of the abdominal muscles without however causing the slightest dilatation of the thorax to be perceived. The corpse was opened a few days afterwards and exhibited the following appearances: 1st, the corpse was in a state of perfect preservation exhibiting no trace of putrefaction; 2d, the breast was sufficiently rounded externally; 3d, the thorax being opened exhibited a considerable distension of the lungs, the left inferior lobe of which extended toward the anterior part of the thoracick cavity; 4th, the colour of the lungs approached to a clear red; their surface sprinkled in many places with deep bright spots, giving them a morbid appearance; 5th, the diaphragm was very little dilated; 6th, after having placed the lungs with the heart and the thymus gland in a deep vase filled with fresh water, these parts floated; 7th, after having separated the heart from the lungs a blackish blood was found in the ventricles; 8th, the lungs separated from the thymus gland and the heart, weighed one ounce six drachms and two scruples; consequently, the proportion between the weight of the lungs and the whole body was as 1 to 76 and 1-117; 9th, being put in water without the thymus gland and the heart they floated; 10th, each of the lungs placed separately in water exhibited the same phenomenon; 11th, by dividing the lungs into many small pieces it was found that they contained but little blood; 12th, a crepitation was distinctly seen during the dissection; 13th, on dividing the lungs under water a great many air bubbles arose; 14th, all the fragments of the lungs without exception floated; 15th, they floated even after an operation was performed on them to squeeze out the black blood some of which they were found to contain.

Observation 2d.—Caroline S——, of a robust form but having suffered a tertian ague in the last month of her pregnancy, was delivered easily of a dead male child weighing 6 lbs. 14 oz. 6 grs.—20 inches long. Neither repeated inflations nor any other excitements could recall it to life. No pulsation was perceived, and the state of the body gave reason to believe that the death had happened some days before the accouchment. Before opening the body it was once more inflated with air; but this was done by a tube introduced into one of the nostrils after the mouth had been carefully closed. The following appearances were then observed: 1st, the thorax was considerably arched and the sides were distinctly raised; 2d, the lungs filled the anterior part of the thorax, particularly the right; they partly covered the pericardium; 3d, their colour was a bright vermillion; 4th, the diaphragm was a little dilated; 5th, the lungs and their appendages, the heart, the great vascular trunks, and the thymus gland, when placed in a deep vase filled with water, floated; 6th, the two ventricles of the heart contained blackish blood; 7th, the lungs separated from the heart and the thymus gland, weighed 1 oz. 5 dwt. 10 grs.; the proportion between their weight and that of the whole body was then as 1 to 67 and 21-79; 8th, the lungs separated from their appendages, floated; 9th, it was the same with each of the lungs separately; 10th, the division of the lungs into many fragments proved that they contained but little blood; 11th, the further division of these fragments under water disengaged a great quantity of air bubbles; 12th, each of the pulmonary fragments floated; 13th, a strong and reiterated compression of these fragments did not prevent them from floating.

The lungs, finally, may exhibit a peculiar emphysematick state, depending neither on putrefaction nor inflation. It is observed, according to Professor Chaussier, in fœtuses which do not give out any putrid smell, and of which all the organs preserve their proper colour and consistence. Thus M. Chaussier found frequently that a part of the lungs floated in cases of infants that had been extracted by the feet, especially when the pelvis was straightened. Although these infants certainly had not respired and must have perished even during the labour, I could not (adds this physician,) attribute this accidental

lightness of the lungs to putrefaction since the infant exhibited no marks of it, and I examined the bodies soon after extraction. But as it is seen that a wound or contusion of any part, and especially of the head, is sometimes accompanied by an emphysematick swelling, so it seemed to me in these cases that the lungs had experienced a kind of contusion—that there had occurred in their tissue an effusion of blood which had given rise to the disengagement of air bubbles, and thus produced the specifick lightness of a part of the lungs. This explanation appeared to me the more probable inasmuch as the lungs were of a brownish violet colour. However this may be, this accidental lightness of the lungs will be readily perceived by observing that in this case the air or æriform fluid is contained in the cellular tissue of the lungs, which is expelled by pressure, after which, if the lungs be put in water, they immediately sink: this would not happen if the air was contained in the bronchial vesicles.

Third objection. Supposing that the pulmonary hydrostatick proof may demonstrate that an infant has not respired, yet it cannot prove that it has not lived.—This objection taken in a certain sense, is well founded. Many functions connected with animal life may sometimes be prolonged for a certain period, in a new born child whom different causes have prevented from breathing, as for example, an excessive constitutional debility, an obstruction of the aerial conduits, or malformation of the thorax or abdomen; a sudden expulsion followed by a fall of the fœtus into some liquid; or finally, the membranes which cover the infant coming forth with it unbroken and depriving it of contact with the atmosphere. These different causes are capable of producing the effect in question more frequently in fœtuses that have not breathed at all, or but for a short time, than in animals in whom this function has been for some time established, which seems to be a general law of the mammiferous animals. This fact, founded upon known physiological principles and confirmed by the experiments of Schurig and Buffon, among others, is not by the way, important to the medico-jurist, since he may draw the conclusion therefrom, that the causes capable of producing a sudden asphyxia in animals that have for a certain period enjoyed extra-uterine life, are not always sufficient to cause it with the same promptitude in those newly born.

Almost all these obstacles to respiration may easily be perceived by examining the corpse, and it is the duty of the person making the examination to consider them as favourably as possible to the person suspected of infanticide. But when these causes are of such a nature that they cannot be properly appreciated by anatomical examination, the pulmonary experiments are no less unfavorable to innocence; for whatever may be said by some medico-jurists, I think that in case of infanticide we ought to limit ourselves to the enquiry whether animal life has existed or not; whether a homicidal hand has destroyed this, or designedly effaced the feeble signs of vegetation life, the crime is undoubtedly the same in the eyes of the moralist, and deserves all the vengeance of the laws; but in order to punish it, it must be proved, and when the limits of an act refuse the necessary degree of certainty, clemency, or rather the fear of sacrificing innocence, should prevail over every other consideration. It must suffice then, to confine ourselves to the submersion of the lungs alone; it is true that this will not show whether the infant has exhibited imperfect signs of life, and whether this imperfect life could have been developed by proper aid; but it should be considered as proof that the fœtus not having respired, it could be considered as having lived.

Before leaving this subject, which I treat in a general way, I think it necessary to return to the subject of the obstruction of the bronchial tubes by muscosities or the liquor amnios, because this accident, which is one of the principal and most frequent obstacles to the respiration of new born children, has been frequently neglected by medico-jurists. Rœderer, Winslow, Abilgnard, Viburg, Herholdt, and Schol, have fixed their attention particularly upon this point; Scheel especially, has considered it in its relation to the medico-legal doctrine of infanticide; (*Diss. inang. physiol. de liquore amnii asperæ arteriæ fœtum humanorum*, 1798)and M. Schmitt, to whose labours I have so frequently adverted, has, by numerous and exact researches, powerfully contributed to confirm the assertions of these authors. The plan of this work precluding me from entering into minute details, I shall only extract the reflections which terminate the observations of M. Schmitt. The obstruction of the bronchial tubes by mucosities or liquor amnii, which prevents

the free respiration of new born infants, is frequently the cause of their death. It is of little consequence in which manner the liquor of amnii is introduced into the bronchial tubes, whether accidentally or by a kind of deglutition: the fact is undoubted, and even quite common, it follows therefore that the medico-jurist ought never to lose sight of it in examining the corpse of a fœtus, he should distinguish between an obstruction by muscosities or liquor amnii, and one caused by the introduction of any foreign liquid; especially in case of a fœtus found in a privy or any similar place. Scheel has established the following rules relative to this subject:

1st. When the liquid contained in the arterial trunk is limpid and contains no air bubbles, or is not converted into froth, it may be inferred with certainty that the infant has not respired. 2d. If, on the contrary, the liquid is frothy, it may be concluded that the infant has respired or been inflated. 3d. When the liquid contains much mucus or meconium, or is very thick and tenacious, the fœtus, although it may have been born alive and endeavored to respire, or even have respired, may have perished from the circumstance alone of its respiration being not sufficiently perfect. In adopting these rules, however, M. Schmitt thinks that the presence of air bubbles alone, in the liquids contained in the arterial trunk and the bronchia, should not always authorise a conclusion that respiration or inflation have occurred after the birth, and that in order to authorise such an opinion, the phenomena in question ought to concur with those which, taken together, characterise respiration or inflation. It will be readily conceived that certain morbid conditions may occasion the developement of gaseous substances in the product of pulmonary exhalation, when no external air has been introduced.

Fourth objection. A new born child may have respired whose lungs will not float. Zeller (see *Valentini Pandect. medico-leg.* part ii. sec. vii. case viii.) first cited a case of this kind. (*Ephem. Nat. Cur.* cent. 1. obs. 121) Similar cases have since been described by Manchart, Heister, and Torrez. In the case related by Heister, the child lived nine hours, moved its limbs, was able to take some of the liquids offered it, and cried feebly. The incompatibility of such a phenomenon with the best established physiological laws, prevented the observations of the

above named authors from obtaining credit, and they were forgotton until a new fact, lately observed by a celebrated physiologist, turned the attention of medico-jurists again to them. Loder (*Pulmonum Docimasia* &c.) found in a fœtus of seven months, weighing 2 lbs. 7 oz. that had lived two hours after its birth, and had frequently uttered distinct sounds, the lungs very compact, of a reddish brown, and in all respects similar to those of one that has not respired. When subjected to the hydrostatick experiment, whether in fragments or in mass, they did not float. There was no pathological condition discoverable, to which the sinking could be attributed. After the publication of this fact, which caused a great sensation, other physicians no less worthy of credit, such as Bucholtz, Osiander, and Mendel, have published similar facts in the medical journals; and finally, the work of M. Schmitt contains three that are well attested.

Upon a careful examination and comparison with each other of these different observations, we shall find that some of these fœtuses were at their full term, and that the submersion of the lungs not only when entire but also in fragments, has occurred only in subjects in which were combined the principal characteristicks of premature birth; on the contrary, in those cases where these characteristicks were less marked in consequence of the birth having happened after the seventh month, some fragments, at least, of the lungs have floated.

We may then account for the apparently extraordinary facts above mentioned, by admitting that life may sometimes be prolonged in a fœtus a certain time, although the respiration be very incomplete, that this possibility is greater, in proportion as the epoch of maturity is more distant, and that in some cases, [very rare indeed] respiration may be so weak that the air will not penetrate the bronchial vessicles, going no further in the trachœa than its first ramifications. This seems also to be the opinion of Haller when he says: *eo retulerim eos fœtus quorum pulmones non natant quia parum respirarunt.* (*Elem. phys.* lib. viii. sect. iv.) This very incomplete respiration, according to Plocquet, will not exclude the possibility that the small volume of air in the wind pipe, may, when it is forced out, produce in passing through the glottis, the sounds which we are assured have been heard in many cases. Finally, it will be recollected.

as I have said above, that the cases capable of producing a sudden asphyxia in individuals that have lived some time, are not always sufficient to cause it with the same promptitude in new born children, and it may be inferred from this principle, that a semblance of respiration (if I may be allowed the expression) may be sufficient to preserve life and to prolong it for a certain period, in a fœtus just born. It is true that the epoch soon arriving when this *tracheal* respiration is not sufficient, death becomes an inevitable consequence of this state. It is more prompt in proportion as the infant is nearer the period of maturity, or the mechanical obstacle to respiration, such as obstruction by mucosities &c. is more considerable.

Another cause has been considered as capable of causing the submersion of lungs of fœtuses that have respired. This cause is the sanguineous obstruction of the lungs occasioned by suffocation. But besides that, those lungs which are the most gorged with blood have never exhibited the phenomenon of submersion to those physicians who have devoted most attention to medico-legal researches respecting new born infants; there is a very simple and certain method of preventing any errour that might arise in the cases in question. This method, first indicated by Buttner and afterwards adopted by Metzger, is to express from the pulmonary fragments the excessive quantity of blood that they contain.

Fifth objection. A fœtus may have respired without having lived. —This objection appears paradoxical and contrary to what has been said above, since in legal medicine we must consider respiration as the sign and proof of life. I have nevertheless thought proper to establish it, in order to complete the history of Pulmonary Docimasy, since it results immediately from an observation which Doctor Benedict, of Chemnitz, caused to be inserted in the Medico-chirurgical Gazette of Salzbourg (Dec. 1812.) This physician assures us that in a fœtus at full term, labouring under hydrocephalus, with a remarkable mal-formation of the head and brain, the lungs exhibited the same appearances as if complete respiration had taken place. M. Benedict gives the following explanation of this fact:

"We observe at the moment of birth as well as of death, certain phenomena which indicate that the vital functions in different organs, begin or cease in different modes. In any

mortal disease, some particular system or organ dies before another. At birth, one organ in some cases exhibits signs of life and causes internal and external excitement before or after another. This in fact may be exhibited in a fœtus born dead, but of which the death was at first only apparent, inasmuch as the capability of certain organs to perceive the specifick irritations to which they are originally destined, is not yet extinct. Respiration then may in this case have taken place so as to completely dilate the lungs, but the disorder which existed in the conformation of the sensitive organs, the brain and the nerves, prevents the existence of extra-uterine life, from which proceeds the paralysis of the functions of those organs as well as of motion; and consequently apparent death. The lungs on the contrary, whose faculty of receiving the irritation of external air appears still to exist, may have been able to re-act, even when none of the functions relative to motion can be exercised."

If it were necessary to combat this explanation rigorously, there would be no want of solid arguments; it might even be demanded, whether it had been proved that the fœtus with hydrocephalus had not respired before birth. But first, is what has been related by M. Benedict a positive fact? I confess that it is impossible for me to consider it as such, since the accouchment was without witnesses, and the mother being afterwards in charge of a public officer must have avoided making any declaration that might criminate herself, and consequently endeavour to have it believed that the infant was still born.

I have always wished to embrace the first opportunity that might offer of ascertaining the state of the lungs of a still born infant with hydrocephalus, and I am indebted to the zeal and friendship of Doctor Beclard for the means of satisfying my curiosity. In the case observed by me, the lungs exhibited all the proofs that respiration had not taken place.

Let us suppose nevertheless in a case of hydrocephalus where a mal-formation implies the impossibility of extra-uterine life, that respiration may take place without it, as M. Benedict seems to admit; the only result would be, that in such cases the respiratory proof would not be applicable. Now this fact is not new, since it has been admitted by a great number of the most zealous partisans of hydrostatick Pulmonary Docimasy.

the validity of which cannot be really affected by an exception which does not exist in infants well formed and capable of sustaining their existence out of the womb.

Appreciation of Plocquet's proof.—However ingenious this mode of proof may at first appear; however admitted the theory upon which it is founded, so far is it from affording any certainty, that it is still less satisfactory than hydrostatick experiments. This method would undoubtedly accomplish the end desired, if the proportions of the body were always the same; but it is not so. M. Jager has been the first to show the difference of the relative weights of the lungs and the bodies to which they belonged: a difference which is shown particularly by the tables which he has published. He has proved that the difference of sex alone contributes to cause so much variation that it would be necessary first of all to find the maximum and minimum of the absolute and relative proportions of weight, not only between the lungs and body of a male infant, but also of a female. Besides the partial nutritive activity of the organs is too irregular not to cause in its turn, numerous anomalies in these same proportions, and the various degrees of obesity would alone be sufficient to prevent the acquisition of that degree of certainty which is so essential. Thus this last is probably one of the principal causes to which may be attributed the notable differences between the results of the experiments of M. Plocquet and the Danish physician M. Hartmann. According to the latter, the mean relation between the total weight of the body of an infant that has respired and its lungs, would be as 48.971 to 1; and the same proportion in an infant that has not respired as 50.839 to 1.

This difference in the proportions would not however have been sufficient to exclude the hope of determining with certainty whether an infant has respired, by Plocquet's method alone. On the contrary it remained to be ascertained whether notwithstanding these differences between the relative weight of the whole body and the lungs, they might go so far as to consider 1 to 70 the proportion in an infant that had respired, and 1 to 35 in one that had not respired. In every case in which, under the circumstances mentioned, these proportions should not be found, the proof of Plocquet might be considered as certain, and would merit a preference over all others. I have

formerly commenced a series of experiments on this subject, which, circumstances independent of my controul, interrupted. They are now useless, since the labours of Professor Chaussier leave no doubt of the possibility that the proportion of 1 to 70 and upwards of 70, may be met with in fœtuses that have respired; as well as of 1 to 35 and above 35, in those that have not respired.

Notwithstanding the multiplied observations of the above named Professor, and the no less important labours of M. Schmitt, there are still some medico-jurists who appear to refuse to admit their evidence, because that in a thesis, among others, lately sustained at the School of Medicine in Paris, the following conclusions are found: *Thus all the objections to the method by the balance are very easily refuted, and cannot in the least detract from its superiority to hydrostatick docimasy: a superiority generally acknowledged and which cannot fail to overcome the attack of objections so futile.* (Essai medico legal, &c.)

But can those objections be called futile which are founded upon experiments so multiplied and exact? When in fact two *savans* celebrated for their knowledge and their zeal, directing, one in France and the other in Germany, vast establishments in which every thing concurs to favour their efforts; when such men, placed in such circumstances, undertake, unknown to each other, the same experiments and obtain the same results, they ought to be held in high esteem, and merit the utmost confidence. M. Chaussier at Paris, and M. Schmitt at Vienna, have made, the first four hundred, and the second one hundred and one observations upon fœtuses at different terms, of different sexes; some of which had respired a greater or less period of time, and others had not respired. Now, it results from these experiments, that the proportions established by M. Plocquet are too variable, as has already been said, to enable us to follow his method exclusively in medico-legal practice.

For the purpose of proving how far the experiments of the two physicans above named agree, I have thought proper to insert a number of them, and have chosen for this purpose those subjects which in all points are most alike in weight.

Experiments on the bodies of infants who had respired						*Experiments on the bodies of infants who had not respired.*					
M. Schmitt.			M. Chaussier.			M. Schmitt.			M. Chaussier.		
weight of the Body.	weight of the Lungs.	Proportion between the weight of the lungs & the body.	weight of the Body.	weight of the Lungs.	Proportion between the weight of the lungs & the body.	weight of the body.	weight of the Lungs.	Proportion between the weight of the lungs & the body.	weight of the Body.	weight of the Lungs.	Proportion between the weight of the lungs & the body
Gram.	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.	Gram.
1012	35	1 to 29	1025	32	1 to 32	699	18	1 to 38	580	6	1 to 100
1055	31	34	1040	32	32	873	22	39	900	19	45
1091	66	16	1100	25	44	1055	70	16	1051	21	50
1099	35	31	1168	17	45	1861	36	37	1400	60	23
1232	31	39	1284	46	26	1572	39	40	1891	38	49
1287	18	70	1280	41	31	1877	33	47	1625	66	25
1486	23	52	1456	23	60	1918	41	44	1900	52	37
1518	31	49	1520	39	39	2090	35	59	2080	48	43
1863	43	43	1830	43	43	2177	32	67	2200	37	59
1968	28	87	1945	31	63	2221	28	79	2250	27	83
2062	54	37	2000	72	28	2352	54	43	2280	44	54
2150	57	38	2150	60	36	2539	74	34	2470	30	86
2355	46	51	2360	38	62	2548	47	61	2550	47	56
2404	36	66	2400	74	32	2748	38	79	2750	74	37
2491	70	35	2490	97	26	2961	44	67	2930	48	62
2758	87	31	2780	93	29	3102	70	44	3102	87	35
2893	49	59	2900	54	54	3312	61	54	3324	41	81
2998	70	42	3000	113	27	3451	49	70	3350	54	62
3207	61	52	3250	68	50	3602	61	54	3500	80	73
3294	80	41	3300	75	44	3650	57	64	3672	41	90
3731	75	49	3650	108	38	4180	80	53	4161	83	50
4150	105	39	4040	43	96	4185	83	50	4300	106	41
Mean Proportion, $42\frac{538}{1130}$			$39\frac{100}{1225}$			$52\frac{90}{1035}$			$49\frac{9}{1105}$		

These proportions are nearer those fixed by Hartman than those established by Plocquet, and they are at the same time the best proof that the experiment by the balance cannot be considered as a method sufficiently certain to deserve the confidence which M. de Volder places in it, preferring it to the hydrostatick proof.

The particular calculations of M. Schmitt also establish what may be considered the opposite extremes of the absolute weight of the lungs;

The weight of 18 Gr. 20 centig. } in infants born before their term and
and of 72 " 52 " } having respired.

16 " 65 " } in infants born before their term and
74 " 91 " } not having respired.

35 " 65 " } in infants born at full term and having
109 " 6 " } respired.

35 " 20 " } in infants born at full term and not
84 " 30 " } having respired.

Application of the preceding details to Medical Jurisprudence.—In examining the weight of the different objections which have been raised against the pulmonary proof, it is found, that in relation to the hydrostatick experiment, there are two which remain in full force. The one is founded on the possibility of a fœtus' respiring before birth; the other on the floating of th

lungs, which may be caused by inflation instead of respiration. The most important objection after these is the possibility that respiration may have taken place altho' the lungs do not float.

As to the objections to the hydrostatick proof, I consider them sufficiently obviated, by the means which I have furnished for avoiding any errour that might arise from a false interpretation of the phenomena on which it is founded.

It then remains to be ascertained whether the three principal objections which may be made to the hydrostatick proof, and and the instability of the proportions given by Plocquet's experiment, ought to proscribe their use in legal medicine; and consequently whether the idea of the possibility of correctness in medico-judicial experiments relative to infanticide, ought to be abandoned. I think not; but I think that the obstacles in question require the physician to be very prudent and reserved. In fact, if in most cases he should not be able to decide positively on the question of extra-uterine life, there are still some in which this decision would be much more easy.

This will be particularly the case when all the results given by the respiratory proofs agree in demonstrating that there has been no respiration after the birth; for in this case the same difficulties do not exist as in the contrary, since there is only one principal circumstance which can prevent a certainty, viz. the possibility that the lungs may not float although the infant has respired.

But when the facts on which this possibility rests are carefully examined, we find that even in those cases in which their interpretation was most difficult, some signs have been observed which evidently exhibited all the traces of a precocious birth or a strongly marked constitutional weakness. No doubts then could exist, in those cases where the constitution and physical developement were perfect.

When the examination of the corpse gives reason to apprehend that respiration has taken place, the fear of criminating the innocent should lead to great circumspection and reserve. Two principal circumstances especially should not be lost sight of, viz. *respiration during the labour, and inflation.* Absolute certainty in this respect, it is true cannot be obtained in all cases; but there are nevertheless a great number which may be obtained in accordance with the results derived from the

state of the organs concerned in the act of respiration, and the information obtained relative to the manner of the accouchment, together with other phenomena which the corpse may exhibit.

From what has preceded it follows;

1st. That Daniel's method of proof is too complex, requiring attentions too minute and instruments too exact to be introduced into medico-legal practice.

2d. That of all the pulmonary proofs, the hydrostatick merits the preference.

3d. That neither this nor any other is sufficient to determine with certainty the weakest degree of respiration, and in this case can only be applicable as exculpatory proof.

4th. That to prove respiration, and consequently life after the birth, the pulmonary proof should coincide with the following circumstances:

a. The fœtus should exhibit all the signs of maturity.

b. It should not be so far putrefied as to prevent experiments or render them uncertain.

c. It should exhibit no mal-formation to which the death could be attributed.

d. The head should neither internally nor externally exhibit such appearances as to cause a belief that the death happened during the birth.

e. The whole of the signs mentioned in the course of this article, taken from the state of the lungs, the diaphragm, the abdominal viscera, &c. should exist in such a manner as to prove that there had been complete respiration.

f. In cases of infanticide, the legal proceedings should prove that there has been no inflation.

g. The information obtained respecting what happened during the birth, should exclude the supposition that the infant might have respired before its birth.

h. Finally there should be on the body some traces to indicate that it has been the victim of criminal practices.

5th. That the proof by the balance, proposed by Plocquet, can only serve to complete the inductions drawn from the hydrostatick experiment when the results of both methods agree. Notwithstanding the irregularity of the proportions given by Plocquet's experiments, they are, when made upon infants born at full term, in most cases such as he has stated.

(J. P. F.) M. Marc.

ARTICLE III.

PRACTICE OF MEDICINE.

Observations on the SICK STOMACH or MILK SICKNESS, as it appears in certain parts of Kentucky, by Dr. J. Bennett.—*communicated by* Dr. Drake.

THIS disease has been prevalent in some of the northern parts of Kentucky, since the recollection of the earliest settlers. It has not been confined to the counties called Harrison, Pendleton, Grant and Campbell, though it has been much more prevalent and violent in those than any others in which I am acquainted. The surface of these counties is generally dry, the soil thin, the timber chiefly different kinds of Oak, (quercus.)

This disease prevails most in autumn, after the summer vegetation is destroyed; and next to this period of the year, in the spring, before it has appeared: sporadick cases however occur in all seasons.

This malady is generally ushered in by the following symptoms, viz. muscular debility, trembling of the knees, cardialgia, acid eructations, a violent burning sensation in the region of the stomach, intolerable thirst and vomiting. The fluid thrown up is often so sour that the patient complains of its setting his teeth on edge; the vomiting soon becomes as frequent as every thirty minutes, and in many cases will continue for several days in succession; after the first or second day, the matter emitted is bilious and discharged in vast quantities. From the commencement of the vomiting there is an obstinate constipation of the bowels. As the disease advances singultus supervenes; the extremities become cold, the strength greatly prostrated, the pulse small and frequent, and the skin cold and dry; the eyes lose their lustre, the countenance assumes a cadaverous appearance, the vomiting is less frequent, but the matter thrown up becomes black, resembling the grounds of coffee. Meanwhile the tongue which had heretofore been moist becomes dry, dark sordes collect around the teeth and gums, the breath becomes fœtid, the respiration hurried; and restlessness, delirium, diarrhœa, and death, close the scene.

The duration of this malady is various, but generally from one to eight days.

From a variety of circumstances, some of which I shall enumerate, I am induced to believe that this disease is produced by the use of the beef, butter, and milk of cattle that have fed upon some poisonous vegetable which I suppose to grow in the counties named above.

1. Among the cattle and horses of that district of country, a disease prevails which is known by the name of the *Trembles*. It shows itself chiefly in the debility of the muscles of locomotion, and extraordinary trembling upon being compelled to take exercise. Under other circumstances the animal may appear well. In fatal cases the most obvious symptom is an extreme prostration of the muscular and voluntary powers. They frequently die without a struggle.

2. Barren cows and bullocks are more subject to this disease than milch cows: calves which suck cows labouring under the disease are almost certain to die. Numerous well attested cases of this kind might be recited. I will mention one which came under my own observation. Two calves were at the same time shut up in the same pen, one of which sucked a cow labouring under the disease, and died; the other was fed by the family, and retained perfect health.

3. Those farmers who keep their cattle and horses in inclosed pastures which have been cultivated, do not lose them by this disease; neither are their families afflicted with it, notwithstanding they use beef, milk, and butter, freely.

4. Carniverous animals which eat the flesh of creatures that die of this disease, frequently fall victims to it.

5. Upon opening the bodies of cattle which have died with this disease, the stomach is found gangrenous, its contents are dry, and upon examining them the villous coat peels off; the liver has a morbid appearance; the gall bladder being greatly distended with bile, and the duodenum is found nearly filled with a dark fluid of a pitchy consistence; the flesh and omentum are both tinged yellow; all which appearances seem to indicate that the chylopocetic organs have been acted on by some powerful agent.

6. There are many symptoms in this malady common to man and domestick animals. 1st. Fatigue acts as an exciting cause in both. 2d. Both are affected with great muscular debility and trembling. 3d. Dogs, and in some instances calves, have been observed to vomit. 4th. Constipation attends in

domestic animals as well as in man. 5th. In animals, the state of the liver and stomach on dissection, is such as indicates a similar morbid action in those organs to that which occurs in the human subject.

From the above circumstances I have been induced to adopt the opinion that this disease arises from a vegetable poison, and that it is communicated to the human subject through the systems of herbiferous animals that have eaten it. I am well aware that the position may be considered as opposed to some theories in physiology, but I rely upon facts.

In the treatment of this malady our principal object should be to evacuate the *Primæ Viæ*, which it is in general difficult to effect, as the stomach is irritable and the bowels are inactive and torpid. To moderate the violence of the vomiting, I direct one ounce of powdered Columbo to be infused in a pint of hot water, and add half an ounce of calcined magnesia: of this infusion I direct a table spoon full to be taken every 30 minutes until the vomiting abates: at the same time, the abdomen, especially over the stomach, should be covered with an active sinapism; and if the extremities are cold, the same application or blistering plasters should be directed for the ancles and wrists. These means seldom fail to lessen the vomiting, and I then administer purgatives. The following I have found most useful, viz. R. Aloes, Gamboge, and Jalap, each one scruple, to be mixed and made into 10 pills, one of which should be taken every hour until they operate freely; injections should be frequently administered; the hot bath sometimes proves serviceable; bleeding has appeared in all cases where its use has fallen under my observation, to be attended with bad consequences.

J. Bennett.

Newport, Kentucky, 1822.

Further observations on the same disease.

We have lately received a long and desultory communication on the foregoing disease from a practitioner who has only favoured us with the initials of his name. We believe that he resides on the waters of the Great Miami, and has made his observations in a district composed partly of Ohio and in part of Indiana. We shall give the substance of his paper in a more condensed form. The following is a summary of the

symptoms, which we give that the profession may have it in their power more fully to judge how far the malady under consideration is entitled to be regarded as a new disease.

The Sick Stomach, when accompanied by any other disease, is generally of very sudden access. It commences with vomiting without much previous nausea which will occur perhaps immediately after a full meal has been eaten with a keen appetite. At other times, however, there will be protracted nausea with symptoms not unlike those attending pyrosis. After the vomiting has begun it occurs in bad cases every fifteen or thirty minutes. The first discharges consist of the alimentary contents of the stomach, the second of green, and the third of yellow bile. A burning sensation in the epigastrium is present from the beginning and in the progress of the complaint becomes highly distressing—while the surface of the body, especially over the extremities, becomes cold and exhibits, with the face, a shrunk and ghastly appearance. The muscular strength, the energy of the organs of sense, and not unfrequently the vigour of the mind, but especially the first, are greatly impaired. Every act of volition seems to aggravate all the symptoms and particularly the vomiting. The bowels are obstinately costive. The pulse, in most cases, is preternaturally slow and soft, and becomes gradually reduced in volume until it is no longer perceptible. In a few cases it is hard and now and then intermitting. An extreme prostration of muscular strength and unquenchable thirst seem however to be the prominent symptoms. In the latter stages the pupils of the eyes are sometimes dilated. From the violent efforts to vomit a little blood, in some cases, is discharged, and to the rupture of a bloodvessel our correspondent refers the coffee-ground discharges which appear in the latter stages of many of the fatal cases. A hiccup often occurs in the early stages of the disease apparently from the action of extraneous matter on the stomach and duodenum, and the patient recovers: in fatal cases the same symptom ushers in death. The breath of the patient in the progress of the disease emits an odour which the writer compares to that of a subject just opened in the anatomical theatre.

Concerning his manner of treating this malady we shall say less. When the pulse is hard he bleeds. As catharticks he

entertains a high opinion of the Ol. Ricini, calomel and aloes, with mucilage, as he conceives the stomach to be deprived of its mucus. In many cases he unites opium with the two last named purgatives. Bitters he thinks are serviceable. As an internal application he directs blisters to the abdomen. He has tried the warm and cold bath but found no advantage from them. An amcylaceous diet has seemed to be most proper.

Two leading opinions respecting the remote cause of this malady prevail in the Western Country; one, that it is occasioned by a vegetable, the other, that it is the offspring of a mineral poison. Our correspondent argues against the former and in support of the latter opinions, and seems to have succeeded more fully in subverting the doctrine to which he objects than in establishing that which he has adopted. He has observed, 1st, that in those districts in which this disease prevails, salt springs emitting sulphureted hydrogen gas, are numerous; 2d, that the spring and well water of the same parts contain sulphate of lime; 3d, that at Brookville, Indiana, this disease had prevailed for several autumns, before the last, where, from an unusual depression of the wells and springs, the inhabitants were compelled to obtain water from a neighbouring stream, and remained comparatively exempt from the disease; 4th, that it generally appears in autumn when, from a reduced quantity of water in the springs where the complaint is endemick, the mineral solutions are most concentrated.

These facts are obviously insufficient to support the theory in question. Sulphureted hydrogen gas, as well as sulphate of lime, a salt found in all our wells, exists in large quantities at Big-Bone Springs, a watering place to which our invalids annually resort in great numbers and of which they drink copiously: and if our springs be reduced in their quantity of water in autumn and their solutions then become stronger, that is the period when miasms and vegetable poisons might be most efficient. We will only add, before dismissing this subject, that we have been assured by Dr. Drake that he has carefully analysed the waters of two springs, one in the state of Ohio the other in Kentucky, which were supposed to be poisonous, and ascertained that they contained nothing but the common mineral impregnations of a calcareous region. The inhabitants in the neighbourhood of these springs had been repeatedly and violently affected with the Sick Stomach.

ARTICLE IV.

ANNOTATIONES DE CONCEPTU.

Ad Joannem Eberle, M. D. Annalium Medicinæ, Editorem.

S. P. D.

CONSUETUDINIS tuæ, Vir docte, tametsi gaudium non est mihi, verba pauca tibi afferre volo ut bonos contra mores, amico tuo, de novo, asperando, offendere evitam.

Sententia de conceptu physiologica, annalibus tuis antehac evulgata, mihi longe a meta aberravisse apparuit; præsertim quod multis in casibus, inapplicabilis et inefficiens, minime que aliorum *analogia* animalium fulcita est. Casus quamvis illi sane abnormes proposuerim, inscius sum quare non mihi rogare liceat, "quomodo hos explicare poterit?" Naturæ *lusus*, si ad partium formas spectemus, absque dubio fuerunt. Rem profecto acu tetigit; nam si verum concessum est, mulieres gravidas factas fuisse, in quarum vagina membra virilia non intromissi potuissent, ac sine uteri labiorum amplexibus; scire utinam, qua procausa hos necessarios esse amplexos? *Conceptus* non abnormes erant veluti partium genitalium formæ tamen conceptus secuta est felix, ubi *nullo conamine*, penis glans uteri ad labia contingat. Huic addam, non omnibus homnibus, membra virilia æqualia constant; æque inter se longitudine ac crassitudine differunt. Quomodo posset hominem cujus est perbrevre membrum patrem fieri, cui maximæ magnitudinis et longa prædita vagina est uxor? Nonne omnibus patet, homines patres fuisse, post glandem viro venereo exesam aut cultello chirurgico exsectam? A quo uteri in labiis *fibræ muscolosæ* inventæ fuere? Amico docto tuo? Sensus compressionis, seu suctus, vaginæ constrictore musculo, anique levatoribus oritur, tantum, credam; quia nisi musculis, nullæ parti corporis humani, *contractionis* vires insunt. Penis neque est glans unicuique sicce in modo constituta, ut ad amplectandum et sugendum apta. Multi quibus sunt glandes cuneiformes, membris perbrevibus gracilibusque junctis, qui nihilo secius proles feliciter gignunt. [Casus nuper duos vel tres legi, in quibus mulieres gravidatæ fuerunt, vaginis valde contractis non obstantibus. Inter alios unum "Diarii medicinæ Nova-Anglicani" ultimo numero invenies.]

Denique repetames "sententiam [Atlenanam] tantum inter cogitationes ingeniosas æstimari debet," et "rebus diurnis et

communibus" est contradictam. Huic addemus se principium mere petivisse quum sententiam suam secundum "leges naturæ firmatas" esse stabilitam, declarat.

Me posse, currente calamo, errare, perbene scio, et amico tuo per te, dicere velim si meos errores grammaticos et inveniet et mihi enunciabit, diligenter gratoque animo emendam. Interim, si de hoc negotio ille ad linguam Anglicam condescendere possit, meæ propensionis physiologicæ æque ac sermonis vernaculi mei, optima exemplaria eidare, libenter conabor.

De titulis tibi si non fastidiat, hæc dicam quum Opus "Nuncius Trimestris" dictum, susceptum fuit sine adjumento prospectus, nominum subscriptorum vel pecuniæ receptæ, editor propositus, *medicis occidentalibus*, incognitus erat. Bibliopola dixit necessarium esse sibi aliquid in existimationis testimonio editoris, *publico* proferre, et dehinc secundum vota solum sua libro titulæ superimpositæ sunt. Amicis tui tituli vere mihi penitet, oblitus fuisse.

Tibi et conatibus causa scientiæ tuis, optimos felicissimosque eventus, omni cultu.

Vult

Ser^{t}. des^{t}.

JOANNES D. GODMAN.

ARTICLE V.

OBSTETRICKS.

From the New York Medical and Physical Journal.

Observations on the SECALE CORNUTUM, *or* ERGOT; *with Directions for its use in Parturition. By* JOHN STEARNS, *M. D. of New York.*

WE have no information when the *secale cornutum*, or ergot, was first introduced into medicinal use. It may have experienced the vicissitudes of other medicines, whose alternate rise and fall, not being known to succeeding ages, have been repeatedly promulgated to the world as new discoveries. It has been recently supposed to have constituted the grand arcanum of a Dutch accoucheur in Holland, who, in 1747, acquired

great fame for his success in obstetrick practice. It was subsequently used in France, till it was interdicted by a legislative act in 1774. Not being subjected to experimental tests, nor prescribed by scientifick rules, it was probably exhibited in quantities and at times very unfavourable to its safety and success. The injurious effects of such vague practice, and the prevalent opinion that it possessed deleterious qualities, were the probable reasons that caused its rejection.

It was not till the year 1807 that the ergot ever appeared before the publick in a form to arrest the attention of medical men. Some years previous to this I was informed of the powerful effects produced by this article in the hands of some ignorant Scotch women in the county of Washington. Determined to try its efficacy, I procured a quantity from a field of rye. My information was such as to impress upon my mind the necessity of extreme caution in my first experiments. The continued influence of this impression upon my subsequent practice, has been a source of much consoling reflection. It has tended to prevent those fatal errors which have so often occurred and which I trust will be satisfactorily explained in the ensuing remarks.

The frequent recurrence of cases in obstetrick practice afforded ample opportunities of executing my design to perfect satisfaction. I gave it in powder and decoction, but the superior efficacy and convenience of the latter soon gave it the decided preference; and in no instance did I ever give more at a dose than ten grains; the ordinary quantity was much less. Its sudden and powerful operation upon the uterus early taught me the necessity of those rules which I subsequently published and which experience has since amply confirmed. The publication of my letter to Dr. Akerly in 1807, produced an immense number of applications from remote practitioners. I immediately forwarded to each samples of the ergot, with directions for its use. By these means it was sooner introduced into general practice than I anticipated. Its use was much extended in New-England by the judicious dissertation of Dr. Prescott read before the Massachusetts Medical Society in 1813. The New-England Journal of Medicine and Surgery contained the opinions and experience of several practitioners in that section of country. While it met with general approbation

and success, some ascribed to it the fatality of still born children; and a few, probably influenced by the prejudices of the French, considered it deleterious. The latter opinion was supported by Dr. Mann, Surgeon General of the Northern Army, in a series of essays published in 1813, and intended to prove that the pneumonia typhodes, then prevalent in the country, derived its origin from this source. This was amply refuted by Dr. Henry S. Waterhouse in a paper published in the New-England Journal.*

The same opinion has been reiterated in some periodical works and inaugural dissertations, which the young authors imagined they had fortified by experiments upon insects. But it is not by such analogies that important principles in medicine are to be settled. We must refer to the human system as the only correct test for experiments of this sort. And here we find rash practitioners exhibiting the ergot by ounces, to the extent of a quarter of a pound, in less than twenty-four hours; and in some instances of amenorrhœa and illegitimate impregnation, it has been continued in large quantities for weeks and months, without producing any deleterious effects upon the females, or upon the fœtus in utero. The suggestion of its deleterious influence upon the child, when cautiously given in ordinary parturition, is undeserving of serious notice. Those who exhibit this article in such enormous quantities, and at times and under circumstances unfavourable to its success, and then proclaim it to be "fatal," or "inert," are influenced by other motives than a desire to elicit truth. Tried by such practice, opium, mercury, and antimony, would long since have been condemned and rejected from the materia medica, and the last was actually consigned to this fate, by the civil authorities of France, after its fatal effects had been *fully proved* by the bold empiricism of that day.

In the accounts which impute the death of still born infants to the ergot, we do not find that minute detail of symptoms, of the quantities given, and of the times and circumstances of its exhibition, which are necessary to enable us to form a correct opinion of the propriety of the prescription. No one can hesitate to believe, that, under certain circumstances, such must be its inevitable effects. And I most sincerely admonish

* N. E. Journal, vol. 5. p. 230.

all those who experience such ill success, entirely to abandon its use. On no principle can a continuation of such practice be justified. I can, however, with much satisfaction affirm, that such has not been the result of my experience, and in no instance has either mother or child sustained any essential injury, which would not have been aggravated by its omission. These remarks are fortified by the testimony of many eminent accoucheurs, whose obstetric practice has been extensive, and most of whom have used it for the last fifteen years with the most complete success.* This discordance of opinion can be explained only by supposing a difference in the circumstances, modes, and times, of its exhibition.

It is important, however, to remark, that those cases which indicate the use of the ergot, would have proved hazardous to the life of the mother or child, and peculiarly distressing to both, if it had not been given. When, therefore, these unfavourable effects occur after its exhibition, they are very improperly attributed to the ergot, instead of their real cause, the intrinsic difficulty of the case. It is to prevent these, and to save life, that it ought ever to be prescribed. These effects I have often witnessed, and for this purpose has it frequently been administered by others with equal success. But never I hope, will this, or any other recommendation of its utility, delude others into the use of it for any other purpose, or under any improper circumstances. If such, in any instance, has been the effect of the opinion that I published in 1807, "that it never produced any bad effects on the patient," I now solemnly retract it. Its bad effects have been too often asseverated to admit of a doubt. I did not then anticipate the abuses to which it has since been subjected. Should these continue, another legislative interdict would be extremely desirable.

To arrest the evil consequences of such practice, and to restrain the use of the ergot, I published in the 7th vol. of the New England Journal, some plain and important rules, which I deem proper to subjoin, with explanatory remarks, and the addition of these cases in which its use is particularly indicated.

1. "It should never be administered where nature is competent to a safe delivery."

In elucidation of this rule it may be observed, that parturition

* N. E. Journal, passim. Med. Rep. 6 vol. N. S. p. 403. Drs. Prescott, Chapman, &c. &c.

is one continued process from beginning to end; one portion of which like the links of a chain, necessarily precedes, in close connexion, that which follows, thus preparing in regular succession suitable changes in the parts concerned. If the interference of art interrupt this order of nature, the whole chain will be broken, and the whole process may be converted into a difficult labour.

2. It should never be administered until the regular pains have ceased, or are ineffectual, and there is danger to be apprehended from delay.

3. "It should never be administered until the rigidity of the os tincæ has subsided, and a perfect relaxation induced."

I am aware, that in my first publication, I intimated that the success of the ergot probably arose from a nausea excited in the stomach, and thence affecting the uterus by sympathy, produced a correspondent relaxation in the rigid fibres of the os tincæ. Subsequent experience has not justified this conclusion, and I have always found it necessary in such cases to premise copious bleeding.

4. "It should never be administered in the incipient stages of labour, nor until the os tincæ is dilated to the size of a dollar."

The success of the ergot is in no case more evident than in the suitable time of its exhibition. Although often given to procure abortion, it does not appear to have succeeded. It also generally fails of complete success when given in the early stage of labour, and before the os uteri is sufficiently dilated and relaxed. The pains induced under these circumstances, often terminate before the labour is fully accomplished. It is delayed till these favourable changes are produced, its success in promoting the action of the uterus is more certain than tartrite of antimony upon the stomach or jalap upon the intestines. But while an attentive observation of its effects, under different circumstances, in several hundred cases, have enabled me to predict its precise operation in almost every instance, I feel incompetent to explain why it fails in the one, or succeeds in the other. Its modus operandi is a desideratum, to harmonize conflicting opinions, to prevent, in all cases, its injurious effects, to show why, under certain circumstances, it is inoperative, and under others powerfully efficacious. Dr. B——

informed me, that he once gave it to a woman before any symptom of labour had appeared, to enable him to perform a journey which this case delayed. In one hour labour actually commenced, and regularly proceeded through its different stages to a safe and expeditious delivery. Had the presentation in this case been wrong and other circumstances unfavourable, his premature prescription might have been fatal to both mother and child. I therefore seriously admonished him never to repeat it in a similar condition.

3. "It should never be administered in any case of preternatural presentation that will require the fœtus to be turned."

The efficacy of the ergot is fully proved by the peculiarity of pains which it induces. From five to twenty minutes we first discover a bearing down effort of the patient. This gradually increases without the least intermission till the delivery is completed. During such an uninterrupted action of the uterus, all efforts to turn the fœtus must be unavailing and hazardous.

6. "It should never be administered during the continuance of one labour, in larger quantities than thirty grains by decoction in half a pint of water." A table spoonfull of this given every ten minutes, generally succeeds better than a larger dose. While this quantity produces its most favourable effects upon the uterus, it does not affect the stomach with nausea or vomiting, which sometimes interrupts its successful operation.

Three grains, with a grain of opium, steeped in a gill of water, and a tea spoonfull given every ten minutes, have succeeded in reproducing the interrupted pains of regular labour. I have, therefore, generally preferred it in this form, as being perfectly safe, and exempt from the objections to the incessant forcing pains induced by larger doses.

By a due observance of these negative rules, it will be perceived, that but few cases can occur that will require the ergot; and for several years past I have not found it necessary to administer it oftener than in one for every thirty that I have attended. But so important do I consider it in certain cases, that I always have it ready for use on the occurrence of any emergent symptoms that may render it immediatety necessary.

I will now proceed to consider those indications which render its exhibition necessary and important.

The ergot is indicated, and may be administered,

I. When, in lingering labours, the child has descended into the pelvis, the parts dilated and relaxed, the pains having ceased, or being too ineffectual to advance the labour, there is danger to be apprehended from delay, by exhaustion of strength and vital energy from hemorrhage, or other alarming symptoms.

II. When the pains are transferred from the uterus to other parts of the body, or to the whole muscular system, producing general puerperal convulsions.

After premising copious bleeding, the ergot concentrates all these misplaced labour-pains upon the uterus, which it soon restores to its appropriate action, and the convulsions immediately cease. A remarkable instance of its efficacy in these affections, is contained in a letter which I received from Dr. Henry S. Waterhouse, of Franklin county, and is too interesting to be omitted in this place.

"Mrs. L. H., of nervous temperament and delicate habit, aged 19, was, on the 24th of June, 1814, seized with the usual precursory symptoms of parturition. I found her affected with wandering pains of the back and abdomen, some throbbing pain of the head, and a tense pulse, though natural in frequency.

The loss of 15 ounces of blood, with fomentations to the abdomen, and a dose of opium, gradually gave her relief, and at evening she fell into a quiet and refreshing sleep. The next morning I was sent for in haste, and was informed, that after a quiet night, she discovered in the morning some symptoms of derangement. She complained of wandering pains in the abdomen, and of a throbbing sensation in her head. These symptoms increased till the most horrid form of puerperal convulsions was brought on, that I ever witnessed. She was constantly muttering things in an incoherent manner; her eyes were rolling from side to side, and turning up in their sockets. She had so frequently bitten her tongue, that the blood was flowing profusely from her mouth; her extremities were of a deadly coldness, and the violent spasms and contractions of the muscles of her limbs, back, abdomen, neck, and lower jaw, were truly alarming. The pulse was natural, but less frequent than in health. With much difficulty her lower extremities were immersed in warm water, and large quantities of the tinctures of opium and assafœtida were forced down. Her abdomen was fomented, and her extremites smartly embrocated

with stimulating applications, &c. but all to no purpose. There was no hemorrhage, but from the condition of my patient, it was impossible to make that accurate examination per vaginum that I wished. I could, however, ascertain that the os uteri was in a small degree dilated. The circumstances were so urgent that I could not defer the use of means till I could procure a consultation. Her strength was rapidly wasting, pulse small and frequent, breathing laborious, and countenance ghastly. The ergot presented itself to my mind as the only probable means of saving her life. I mixed thirty grains in a small quantity of warm water, and gradually insinuated a table spoonful between her teeth, worked it into her mouth, and in two or three minutes she had swallowed it. The effects were almost instantaneous and truly astonishing. Her spasms gave way, the operations of her mind became regular, and she awoke as she supposed, from a disturbed and painful sleep. She complained of much weariness. A strong cup of tea was given her with some light nourishment, and she soon fell into a quiet sleep. In the evening following, true and forcible labour-pains came on, and I delivered her in a short time with perfect safety."

III. When in the early stages of pregnancy, abortion becomes inevitable, accompanied with profuse hemorrhage and feeble uterine contractions.

IV. When the placenta is retained from a deficiency of contractions.

V. In patients liable to hemorrhage immediately after delivery.

In such cases the ergot may be given as a preventative, a few minutes before the termination of the labour.

VI. When hemorrhage or lochial discharges are too profuse immediately after delivery, and the uterus continues dilated and relaxed without any ability to contract.

I have thus exhibited a general view of the errours often committed in prescribing ergot, of the unfavourable results of such practice, of those cases in which it never ought to be administered, and of the indications which render its exhibition necessary and important. These remarks are derived from actual experience in several hundred cases, and are confirmed by those whose observations have been the most extensive and

correct. While there is reason to suspect the influence of prejudice upon the minds of some who oppose its use, their own statements generally admit their very limited opportunities for witnessing its effects, and in some instances, while using it in their first experiments, on which their opinions were founded, that they grossly deviated from every direction calculated to ensure success.

While the frequent occurrence of such abuses is to be deplored, much satisfaction may be derived from the reflection that a prudent and judicious use of this article, has in a great variety of instances contributed to save the lives of the mother and child. That such will continue to be its effects when directed by a discreet, judicious, and experinced practitioner, we have the most satisfactory reason to infer from past experience, and from the peculiar properties and operation of the ergot.

ARTICLE VI.

ARTICLE ERUPTIONS.

A Letter to Charles Henry Parry, M. D. F. R. S. *&c. &c. on the Influence of Artificial eruptions, in certain Diseases incidental to the Human Body, with an Inquiry respecting the probable advantages to be derived from further Experiment.* By Edward Jenner, Esq. M. D. LL. D. F. R. S. M. N. I. F., &c. &c. &c. and Physician extraordinary to the King. London, 1822.*

From the American Medical Recorder.

THESE trials of the influence of vesiculo-pustular eruptions excited by means of tartarized antimony, have as yet been limited, but I trust the general favourable results of the experiments made, will apologize for my hazarding a few physiologi- hints for the consideration of those who may think a wider basis to work upon desirable. In many points I can have nothing to offer save in the form of speculation, but I hope you will not discard my letter until you have sufficiently reflected upon

* The first part of this valuable paper consists entirely of Cases. Our limits do not permit us to introduce the whole letter, and we commence with the general observations of this celebrated writer. Ed. W. Q. R.

what I submit to your consideration, and you will then perceive I make my stand on my favourite pedestal, analogy.

There was a period at which an inquiry into the effects of the application of tartarized antimony in some diseases, appears to have been made and to have excited considerable interest. It is difficult to conjecture the reason of the chasm which took place in the inquiry. At all events it has been vaguely pursued. At the time to which I allude, 1773, two papers appeared in the Memoirs of the Medical Society of London, on the external application of tartar emetick: the first had for its object, to deny the possibility of its external absorption;† but the second, communicated by Dr. Bradley, contains some interesting observations on its influence in rheumatick affections, for which it had been previously recommended to the Society.‡

"In these cases," said Dr. Bradley, "it was generally rubbed on the parts which were the seat of pain, and afterwards below in course of absorption.

"In every instance it appeared to be a remedy of great efficacy; but the disagreeable symptoms produced by it, caused many either to desert its use altogether, or to apply it unfaithfully.

"In recent cases the first or second application has often removed the complaint, but those which occur by far the most frequently are of long standing, in which it may often be necessary to persevere in the frictions for three or four weeks; and it is in these instances that we have cause to despair of the resolution of most patients."*

After remarking on the aversion of patients to the irritation of the pustules, Dr. Bradley continues:

"The pustules are uniformly compared by the patient to variolous pustules; but they are much smaller, not so red at the base, nor so tense and white when fully suppurated. The decided relief which is commonly experienced from this application during the first week, encourages patients in general to persevere pretty firmly for the first seven or eight days, at the end of which time the pustules become so numerous and

† "Observations and experiments on the external Absorption of Emetick Tartar and Arsenick. By William Gaitskell, Surgeon, Rotherhithe," p. 79.

‡ "Observations on the external use of Tartarized Antimony. By Thomas Bradley, M. D. and F. M. S." pp. 247—252.

* It does not appear that Dr. Bradley had any views beyond the mere irritation and inflammation of the skin. E. J.

distressing that the remedy must be unavoidably intermitted. This effect of the medicine in the above mode of application is the only objection that I have observed to the general use of it in sciatica, rheumatism, torpor, and partial paralysis. The cutaneous lymphaticks seem to be very generally affected by it, but none of the deep seated ones.

"When the first or any subsequent eruption is entirely healed, a renewal of the frictions produces another in the same degree as before: whence we may conclude, that there is no occasion to increase the dose of the medicine on account of habit, as we do on many other occasions."

Also: "The above are the usual and general effects of the external application of tartarized antimony; but in particular instances some deviations or irregularities were observed. These I have not been able, as yet, to impute to temperament or peculiar habits, though I expect the eruption to be more particularly distressing in the same persons that are predisposed to a violent small-pox.

"In about one case in ten the eruption did not appear; in these, however, there was cause to doubt of the fidelity of the application.

"In several cases the eruption was not confined to the course of the lymphaticks, but appeared on very distant parts of the body." Dr. Bradley afterwards observes, "I believe a very free use of such frictions would produce a general eruption over the whole body.

"In one patient, who, I am convinced, did not rub in less than half an ounce in the course of one week, the itching and eruption were preceded by a general restlessnes, and two or three times by a slight degree of nausea."

The most recent individual, as far as I am aware, who has written on the particular effect of tartarized antimony externally applied, is Dr. Robinson, in a good paper on chin-cough,* in whose opinions it will appear that I coincide as to the mode of its operation being quite peculiar, and contrary to the more simple effect obtained from the application of a blister which only raises the cuticle.

He speaks in the following emphatick manner of the general effect of tartar emetick in hooping-cough:—"To these observa-

* See "London Medical Repository," Jan. 1821.

tions I have to add, that of all the remedies I have found beneficial in hooping-cough, frictions upon the region of the stomach with the tartarized antimonial ointment, have been the *most remarkably and undeviatingly useful.* The eruption on the stomach is frequently accompanied with a slight degree of inflammation about remote parts in females, with a spare eruption of minute pimples; and on this occurring the disease uniformly begins to abate. In cases where the patient is of a full habit, and the inflammatory diathesis runs high, it may be proper to apply a few leeches to the feet previously to the use of the antimonial ointment. *But I have used it with advantage even in cases where the fever was attended with delirium at night.* I have never seen the eruption produced in this way threaten the bad consequences from gangrene which not unfrequently supervene when the blisters are applied too early in hooping-cough when the inflammatory diathesis runs high and before blood has been abstracted. The effects of the ointment in other respects are *also widely different. When it does produce an eruption it almost always affords relief:* whereas I have never seen one instance where the application of a blister has been of the *smallest service* in hooping-cough except after blood-letting when there have been manifest symptoms of inflammation; otherwise I am fully persuaded that blisters are often hurtful."

By the tartrite of antimony we can not only create vesicles but we can do more—we have at our command an application which will at the same time both VESICATE AND PRODUCE DISEASED ACTION ON THE SKIN ITSELF, BY DEEPLY DERANGING ITS STUCTURE BENEATH THE SURFACE. This is probably one cause why the sympathetick affection excited by the use of cantharides, and those changes produced by tartar emetick, are very different.

If we enter into minute inquiry, do we not perceive that different natural diseases of the skin have their peculiar sympathies with the constitution, from causes which from analogy admit of imitation by the use of artificial irritants? First, have we not those diseases which take away the cuticle, expose the raw surface of the cutis, and excite a new diseased action on the abraded surface which then discharges a fluid apparently consisting of little more than serum, next a semipurulent, and, lastly, a discharge nearly purulent? Secondly, diseases or derangements in the cutis itself, which call a train of sympa-

thies into action of a still more extensive and important nature: and, thirdly, the subcutaneous affections of the cellular membrane, which indeed do not admit, strictly speaking, of being directly classed with the pure diseases of the skin, though the skin becomes indirectly affected as in boils or carbuncles? Hence then, in all probability, arise their complexity and extensive effects on the constitution.

Some of the most unsightly, obstinate, and widely-spreading cutaneous eruptions produce little or no constitutional irritation, nay, merely simple itching. For what reason? They are attached to the surface of the cutis merely, and do not penetrate into its substance. To the same causes is attributable the comparative mildness or entire want of secondary fever in varioloid affections and in chicken-pox.

Many observations might be made upon the distinction between the mildness of small-pox in some cases and its severity in others which tend to support the above observation. A different degree of secondary fever will follow when the skin is simply affected on its surface and when it is partially destroyed beneath. The skin is a very comprehensive term: it may be said to consist of cuticle, cutis vera, rete mucosum, and its partial connection with cellular membrane. In my first work on the Vaccine I pointed out the different symptomatick and constitutional effects produced by variolous virus, whether inserted in such a way as merely to be lodged within the skin or to pass through it and to be lodged upon or within the cellular membrane.*

It having appeared in my own cases, and in those of others, that the relief afforded was almost invariably timed, not simply by the first blush of inflammation, but by the appearance of vesicles which contained *a secreted fluid*, and that these seemed absolutely necessary for the production of constitutional influence. Ought not, therefore, the imperfect state of our knowledge on this subject to excite our deep physiological inquiries, to endeavour to account for this extraordinary phenomenon?

Is it not possible that in cases where the artificial vesicle has been of benefit to the constitution, that the effect has been similar to that by which Nature gives her aid in most instances where she produces spontaneous eruptions?

* "Inquiry into the Causes and Effects of the Variolæ Vaccinæ." Third edit. p. 50—53.

Whoever has observed the deranged state of health where vesiculated eruptions have been called into action by an effort of Nature, must have seen how often they arrest the progress of the original disorder, and may we not from thence infer what appears to me to be a pretty general law of nature, that she often gets rid of diseased action affecting vital organs, by exciting eruptions in other parts not vital?

I am aware that this doctrine is not entirely new or unobserved; but though the phenomona have been so often described, have we taken the hint in our treatment of diseases either chronic or acute? The humoral pathologists maintained the *metastasis* of diseases; but, instead of arguing that eruptive affections were *exchanges of diseased action*, they considered them to be the *drains* by which certain humours existing in a depraved condition of the circulating fluids were carried off.

The illustrations which I shall presume to offer relative to this part of my inquiry may be too limited, but I find it difficult to mark the boundary within which Nature acts. That people lose their catarrhs upon the appearance of eruptions on the lips, for example, is one of the most familiar of all facts of this kind. My friend, the respectable Dr. Fleming, formerly at the head of the medical department at Calcutta, and now a worthy member of the house of commons, to whom I have to acknowledge great obligations, told me, that he was formerly often attacked with catarrhs and intermittents; "in which," he said, "I took the bark frequently, but seldom got well till herpetic eruptions appeared on my lips."

Lest you should think what I say here at variance with what I have repeatedly said elsewhere respecting our sweeping *all* eruptions from the skin previously to, or at the time of, our inserting the vaccine lymph, allow me to bring to your mind the fact, that in this case we make a commutation only, as the influence of one eruption is changed for another; for no sooner is the spontaneous eruption subdued, than the artificial (the vaccine) takes its place, and safely affords its influence. Considering these infantile eruptions as guards to the constitution while under various irritations, that of teething, for example, and others, I could on no other principle, with due attention to physiological caution, venture to supersede them.* Indeed

* See my Circular Letter, which has been widely distributed, and also inserted in many of the periodical journals within the present year.

they are sometimes converted by inoculation into vaccine vesicles. I may here observe, how frequently do we find fever, diarrhœa, or convulsions, follow tooth-rashes, if imprudently checked.

Dr. Ferriar, in his Medical Histories and Reflections, under that head in which he has treated of the conversion of diseases, has occasionally alluded so closely to the subject to which I am now calling your attention, that his opinions and observations may be very aptly quoted here, as being in unison with my own. He observes, (Vol. II. p. 69,) "there are many unexpected and dangerous conversions, in the class of exanthemata, from the eruptions, after they have been completed, to inflammation of the internal parts: that in erysipelas we are not yet acquainted with all the circumstances under which inflammation is translated from the skin to the brain," &c. After thus noticing these phenomena, he very justly says: "We perceive at once a great deficiency in medical science, and a train of inquiry equally curious and useful."

"Cutaneous eruptions often extinguish dangerous diseases. Excepting the regular exanthemata, such conversions seldom happen in acute disorders. I have known acute rheumatism accompanied, in two cases, with efflorescences on the legs, but they seem to have no effect on the pains.* Madness and melancholy, epilepsy, delirium protracted after fever, dyspepsia, various pulmonary affections, are all observed to be mitigated or removed on the appearance of cutaneous disorders; especially on the return of those which, after becoming familiar, had been suddenly suppressed."

"In electrifying patients for obstinate cases of palsy, I have often remarked, that the patient received *no benefit till red, fiery eruptions were produced* on those parts of the limb which were surrounded by the chain."

The practice of making artificial eruptions appears not to have escaped the mind of Dr. Ferriar, but he speaks unfavourable of the result. His opinions on this particular point, however, are not perfectly satisfactory to me, for he has given no information concerning the irritants which he employed, nor

* Here there was no vesicular eruption, which *in general* seems the favourite scheme of Nature for limiting the duration of peculiar morbid actions. E. J.

whether his experiments merely produced vesiculated elevations of the cuticle, or went further. He says:

"Some Practitioners have imagined, that much could be done by producing crops of pestules on the surface by stimulant applications, in diseases of the lungs and the joints. My experience of this method furnishes no proof of its efficacy.

"Perhaps, as I have suggested elsewhere, a specifick eruption is requisite, in such cases, more frequently than we are aware."

That a small cluster of vesicles, or even a serous oozing from an abraded surface, may produce a new general action, is not to be disputed. It has passed under my observation, times out of number, in cases of vaccination. But here, I have some apprehension Nature will not always act so friendly a part as my ardent hopes induce me to expect. In one instance she produces the sort of eruption required to effect her purpose; in the other it is called out involuntarily. On this account, in non-exanthematous fevers, which have a mortal tendency, perhaps a variety of stimulants would be deserving of trial at the same time.

Dr. F. continues: "In general there is no safer conversion than that to the skin; the distance of the affected part from those necessary to life; the varieties in the state of circulation, to which it is habituated, and the easy application of external remedies which it admits, combine for the security of the patient; whenever a disease is fully translated to the skin, sudden conversions from the skin to the internal parts, are, I believe, universally dangerous, whether they interrupt the course of an acute or chronic disease."

"Some affections of the skin, though they happen in consequence of acute diseases, seem to have no effect on the original complaint, such are pretechiæ in typhus."*

"In the second case, published in the Medical Histories and Reflections, there is a curious instance of connection between an erythematous state of the skin and convulsions, attended with racking pain in the stomach."—P. 78.

In vol. II. previous to these observations, Dr. Ferriar alludes to some interesting cases.

"In one maniacal case, which succeeded an ill-treated typhus, the patient received no relief from medicines, till a broad

* See Remarks. pag. seq. on Plague. E. J.

yellow scurfy eruption* appeared about the crown of his head which was bald. Successive crops of these eruptions delivered him completely from all remains of his mental disorder."—P. 46.

"I have noticed elsewhere† a remarkable case in which epileptick fits were produced by the retrocession of the itch in consequence of some external application. In that case the epilepsy resisted all the usual methods and was only cured by re-producing the itch."

"Instances of the production of melancholy and madness by the suppression of eruptions or the healing of old ulcers and habitual drains, are common in practical writers."‡—P. 47.

"Tedious dyspeptick cases are often converted to cutaneous eruptions, in distinct pimples, of a fiery red colour. Such eruptions extinguish the complaint in the stomach."—P. 50.

Huxham, in his Essay on Fevers, has related some general facts which, though brought into compliance with the prevailing doctrine of his time, merit quotation. That part is particularly worthy of notice here which describes the consent between the lungs and skin, since it very materially assimilates with my own experience of the favourable effect of artificial eruptions in some pulmonary cases.

"Sometimes the morbid matter is critically translated to the lower parts, producing phlegmon, impostumes, erysipelatose or œdematous swellings, ulcers, &c.; particularly in persons formerly subject to swoln or sore legs, which are frequently noted to swell or break up again at the close of peripneumonick disorders to the great relief of the breast. It is a well known thing, that on drying up ulcers in the legs suddenly, the lungs become forthwith affected; and that hydropick tumours of these parts, forced up by laced stockings, bandages, &c. immediately bring on asthmatick disorders."—"When blisters applied to the legs in pulmonick diseases, *ulcerate severely*, they commonly give great relief; but they are often exceedingly difficult to be healed up. This was particularly remarkable in the years 1740, 1741, 1746, 1747. I then also observed that if the discharge from the ulcerated blisters was suddenly suppressed,

* It must be recollected, lest I am accused of contradiction, that no scurfy appearance can manifest itself on the skin without its first assuming a fluid form. E. J.

† Medical Histories and Reflections, pp. 183, 184.

‡ Arnold, in his work on Insanity, has named the retrocession of cutaneous affections as a cause of apoplexy.

not only the cough and difficulty of breathing returned, but sometimes a very great purging and sometimes very profuse sweats came on, &c."—"From some observations of this kind, it is likely the ancients (who always carefully studied to follow and second Nature's endeavours) applied *acrid epithems*, as salt, mustard, &c. to the breast, back, and shoulders, in pulmonick distempers. *It is certain there is a great consent between the skin and the lungs, as is evident in a repelled itch, small-pox, measles, &c. which immediately fall on the breast.*"—Pp. 220 and 221.

An apology is due for citing facts of such common occurrence, especially in the old authors, and the more general since they were so fundamentally combined with the doctrine of the humours; but though common, yet, as your father observes, prefatory to numerous examples (see Elem. of Pathology, *chap.* Relation of Diseases by Conversion, a work of which the high importance is not enough appreciated) "they give very important information as to the nature and cause of diseases." The particular interest of these quotations does not consist so much in their simple pathological consideration as in the mutual resemblance of the effects of the natural and artificial process.

In order that I may display, in a still stronger point of view, the analogy between the phenomena of artificial and spontaneous eruptions, and the peculiar operations which we may hope to imitate in certain states with successful results, allow me to bring to your recollection, in a few preliminary observations, the rise, progress, and termination of what is called an exanthematous fever. The small-pox will afford a luminous example.

Morbid animal matter, generated by this disease, is applied to the body either by what is termed the natural or artificial mode. After a given space of time, in either case, diseased action is manifested by that constitutional derangement which is designated fever. This goes on for a limited period when eruptions appear on the skin which soon show on their apices vesiculated specks. Here the disease, as far as it depended on the *primary action* of the infectious matter which called it into existence, terminates. But now a new train of symptoms comes on, consequent to the diseased action excited on the skin by the *pustules*, the influence of which is felt in proportion to their numbers, their malignancy, the disposition of the constitution,

and the extent to which they penetrate the skin. The fever in the first and second instances, has two *distinct* origins. In the *first* instance, it arises from the influence of the morbid matter inhaled or intentionally applied; in the *second*, from diseased action going forward on the skin, and in many instances, also on the mucous membranes of the fauces, trachea, and ramifications of the bronchi. The rapidity with which, in some instances, the secondary diseased action follows the primary, often obscures the distinction. Of this the ordinary phenomena of confluent small-pox and scarlatina exhibit familiar instances. In the first of these the skin is often so quickly and universally assailed, that there is, in most instances, no interval of cessation. Nature is in a hurry to call out her guards!

Let me here introduce some practical remarks upon the benefits which may be derived from sedative applications, where the pustules are formed so thick upon the cutis as to augment in a high degree the secondary fever. From the rare occurrence of small-pox in this district, I have had no opportunities of making the experiment myself, but on suggesting it to my friend Mr. Fry, he made trial of it in the case of a young woman, when the small-pox made its appearance in the town of Dursley some months since. This patient had a full burthen of distinct small-pox, and her countenance was loaded with pustules. In this state one cheek was sopped with liq. lythargyri somewhat more diluted than I intended, while the other was suffered to take its course for the sake of comparison. The consequence was, that although, from excessive occupation, this process was not repeated by Mr. F. the effect was nevertheless very manifest, for the pustules were so much checked in their progress to maturation, that they could be scarcely said to have maturated at all. This practice suggested itself to me in consequence of using lotions which possess a chemical, probably a coagulating influence over the secreted fluid itself, as well as the organic arrangement destined to form the secreting process, in cases in which the irritative inflammation that surrounds the cow-pox pustule has a tendency to ramble too widely. Of this I may cursorily observe, we shall hope to see no more if attention is paid to my instructions lately re-published.—The principle, I must repeat, consists in mitigating the secondary commotion in the constitution, by checking the ac-

tivity of the pustules which excite it. How often have I seen violent febrile irritation in the constitution, arising from carbuncle and erysipelas, entirely removed by the use of these applications! In London, some years ago, I suggested repeatedly to the late Dr. Woodville, who had such opportunities at the Small-pox Hospital, and again to his successor Dr. Joseph Adams, in some of those desperate cases in which fatal results must inevitably follow when the disease was left to pursue its own course, to sop the skin, or even to wrap the patients in sheets wetted with liq. plumbi, but without exciting any practical attention. Even should this, or any other mode suggested by the hints thrown out, prove successful, *nature would probably require that we should leave here and there a cluster of pustules*, e. g. *on a leg or arm, or any other convenient part, to go through their course.* I am aware of the injurious influence of lead, as no one has seen more of it than myself, but, in cases like these, we are warranted in running a risk to avoid destruction OTHERWISE inevitable.

In advancing an opinion that the secondary fever in small-pox is of another kind to the primary, I believe that I differ from other authors. Dr. Cullen in his "First Lines," seems to speak as if he believed the secondary fever to be often a continuation of the primary or eruptive fever. He says, "But if the secondary fever follow the confluent small-pox, and be a continuance and exacerbation of the fever which had subsisted before," &c. Sydenham, though led astray by the theories of the humoral pathologists, in his subsequent reasonings, most correctly observed the phenomena and proximate cause of the secondary fever in small-pox. He says, "For after the most exquisite observation, the chief of all is, that in the small-pox, the *greatest safety* proceeds from the *paucity* of pustules, and the *most danger* from the *fulness* of them; and as they are *few* or *numerous*, so the patient *lives* or *dies*. I think it very easy to give an account why the patient is more or less endangered, according to the greater or lesser number of pustules, for every pustule is a *phlegmon*, THOUGH VERY SMALL, and presently imposthumates." P. 170. He afterwards correctly indicates the practice to which I have had recourse. "Wherefore, if the patient be not otherwise in danger (to omit for the present the bloody urine and purple spots) than by the great number of

pustules, I diligently consider upon what account they come so full, and I endeavour, all I can safely, to restrain them, (Why then not keep them within a certain boundary by more powerful means than merely keeping the skin cool? E. J.) which indeed is the main business, and the best means to help the patient; for it is very hazardous to do any thing in this sort, when the disease is established." P. 371.* Sydenham however, used no externals; it is evident he alludes to medicine and regimen.

As proof of the protecting power of spontaneous eruptions, though under peculiar circumstances the boundaries of protection may be over-stepped, I need only to recall to your remembrance the distresses of the constitution when the eruption suddenly disappears; and the salutary changes immediately manifested on its re-appearance, in measles.† Even in small-pox, though the disease itself cannot possibly disappear wholly, the eruptions, when in a vivid state of maturation, may so lose their prominent appearance, as on a sudden to become flattened and excite distress in the constitution, which is often followed by fatal consequences.

I have seen cases where death has ensued, both in natural and inoculated small-pox, on the second or third day after sickening, when *no eruption had taken place*. In these cases the skin was in many parts marbled with broad livid lines, and in others there was ecchymosis.

When eruptions appear early which have not the proper vesicular character, the indications are the reverse of being favourable. Cases of small-pox occasionally occur, in which, during the period of sickening, the patient is seized with the usual symptoms; in the course of a day or two these symptoms are aggravated, and the skin, instead of throwing out pustular eruptions, becomes covered with vibices and purpura, accompanied with hemorrhages. Whenever this is the case, the

* "Pechey's Translation," Tenth Edition, 8vo. Let me refer the reader to the opinions of Huxham on the causes of secondary fever in small-pox and its external treatment. "Essay on fevers," pp. 136, 186, 187.

† It may be hastily objected, that neither measles nor scarlatina produce serous eruptions, but this would be erroneous. Vesications in both diseases, sometimes appear, particularly on the inside of the fingers. It may not be known as a common fact, that the concreted matter, which falls some time afterwards from the skins of persons who have had measles or scarlatina, is a common source of the communication of disease from one individual to another. A young gentleman who had had scarlatina at school, was a particular proof of this occurrence. After repeated changes of linen, he was sent to the house of a relative as convalescent. He often amused himself with blowing the scaly powder which had formed on his skin upon the faces of other children and attendants, to whom he thus spread the infection.

patient invariably sinks suddenly. These facts, though not familiar, were well known to those who were in the habit of observing small-pox, when it was more general than now.—Sydenham has described analagous results in cases of the plague.† The best informed authors also tell us, in this disease, that when the skin is beset with boils (a species of eruption which is soon attended with a serous fluid on the apices,) the danger of a fatal termination is by no means so great as when there is no cuticular disease of this description; and that, when indurated lumps occur, which are only to be felt under the skin, and do not rise above the surface, no benefit follows.

The *permanent* protection by which the constitution is guarded from secondary attacks in some eruptive diseases, which in a general way appear but once, seems to be derived, not like the temporary protection against the commotion excited in the constitution, from the action of the matter generated on the skin in the form of pustules, but from the primary action of the matter on the constitution exciting the primary fever, whether derived from infection received by exposure, or by artificial application. They who have had the variolous fever without the variolous eruption have resisted the infection afterwards, as in ordinary cases. Seeing then that small-pox, scarlatina, and many diseases highly alarming at their onset, for the most part either terminate, or are much mitigated on the appearance of an eruption, it may be submitted as a postulate, whether the tendency of many diseases, arising from the action of animal poisons brought in contact with the human body, does not in general, from want of such aid from nature, observe a more fatal course? If the proposition which I have ventured to advance, that the sympathy of the constitution with artificial eruptions has in many instances been characteristic of the sympathy between the constitution and skin, in the generality of those cases in which vesicular eruptions appear spontaneously; and if the phenomenon be finally confirmed by additional experience, that their action is therefore different in most instances from the more simple effect obtained by the application of those substances, which are termed counter-irritants, such as simply irritate or even vesicate the skin,—may not our endeavours, founded on what I have before stated, be made to

† See Swan's edition of Sydenham, 1742, pp. 77, 78.

excite such sympathies with advantage in those febrile diseases which come under the appellation of Non-exanthematous?

In an early publication, whilst I was writing on the subject of Cow-pox Inoculation, I threw out a hint: "As we have seen that the constitution may be made to feel the febrile attack of cow-pock,* might it not in many chronic diseases be introduced into the system, with the probability of affording relief upon well known physiological principles?"

It is a matter of interesting speculation in what way the sympathy is created between the constitution and the skin, and how the former feels the influence of spontaneous eruptions. Is it not, in all probability, through the medium of the brain and nervous system? The disposition in the brain to receive unfavourable impressions from ill-timed suppressions of cutaneous affections, is a reflex action favourable to my supposition; and I may again remind you of the ostensible connection of the brain and nerves with the appearances on the skin in the exanthemata. Secretion is an important function, undoubtedly regulated by nervous influence, and by making supernumerary and often temporary secretions, as by extraneous eruptions, may not certain laws of morbid actions, producing results similar to those reasoned on by Mr. Hunter, be the most general purport of their appearance? May we not, by making new diseases, check the progress of disease in a vital organ or in a part where it may be unmanageable, by substituting another which is under our control?

I conceive that not only the typhus and yellow fever and other acute diseases attended with eruptions, rheumatism for example, might be comprised within the sphere of our experimental attempts, but that many other affections may also be included, in which the brain and nerves are primarily disordered. Suspecting also, from various coincidences, that dysentery in the first instance is an affection of the brain, and that the visceral derangement is merely consequential, (I cannot here go into detail) I should try the ointment as a remedy if opportunity offered.

* I have in the Treatise referred to, called it Febrile Attack, but the term Influence, as it is not strictly febrile, would have expressed my meaning more correctly; for at that early period the effects of co-existing herpetic eruptions were not clearly known to me. The vesicle on the arm and surrounding skin is apt to participate in their nature, and it is from this source that febrile connection manifests itself in the constitution, and not from the vaccine vesicle, when it goes through its course with regularity.

Before I proceed farther with my opinions regarding the influence of artificial eruptions in fevers, &c. it may not be amiss to go into a short inquiry which may probably be thought interesting, viz. the resemblance of certain diseases which are most strongly characterized by symptoms of a disordered state of the brain and its appendages; as violent catarrhs, which I too well know may be called typhoid, having too often experienced both the typhus and contagious catarrh myself. I have long suspected, from comparative dissections, that the sinuses are more in fault, as I shall explain, in the worst species of catarrhs and typhus than we are aware of. How often have we known typhus removed by an early hemorrhage from the nose; but who thinks afterwards of going further and examining these parts attentively in those cases which terminate fatally? Allow me to remind you, that your post as physician to more than one large hospital, may possibly afford you an opportunity of elucidating this point.*

You will recollect our conversation respecting *staggers* in the horse. In every case which I could meet with (and I am happy to say there were not many,) I found the symptoms and appearances bearing a strong resemblance to those in the dog distemper. In one case two or three ounces of coagulated blood was found adhering to the mucous membranes of the triple sinuses, a proof of extreme turgescence—the surrounding parts were excessively inflamed; but there was no corresponding state of the brain, which could account for the violent delirium which preceded death. Can the brain *itself* ever be inflamed, or is inflammation within the skull confined to membrane only? The near connection between the nerves expanded over the sinuses and the brain need not be pointed out to you. I some time since had an opportunity of watching the progress of hydrophobia in a dog, for several successive days, till he died. The appearance of this animal, on dissection, and of that which dies of the *dog distemper*, bore a nearer resemblance than I expected to find. Inflammation was certainly apparent on the membranes lining the sinuses at the basis of the skull. But though the analogy between the two diseases is stronger than is generally supposed, it must be recollected, happily for the human race, that the morbid matter secreted in the *distemper* will not produce hydrophobia by effluvia or contact.

* See my paper on the Dog Distemper, Medico-Chirurgical Transactions, Vol. I. pp. 261, 264.

What would be the effect of experiments conducted on the principle of making new cuticular diseases not only in non-exanthematous but in certain diseases generated by animal poisons, which I am aware are not classed with fever? For here analogy lends its aid. Many animal and vegetable poisons, taken into the stomach, very quickly excite eruptions on the skin, and thus obviate their deleterious tendency.†

Although the efforts of medical men have been assiduously employed in seeking a remedy for that horrid disease hydrophobia, yet it is lamentable to think, that under every present mode of treatment the death of the patient has, as far as my information hitherto extends, invariably attended the occurrence of the disease. But shall we abandon hope, and rest satisfied that every avenue which affords the least probability of leading to success has been explored? Though the mode of treatment has, in almost every instance recorded, been a mere repetition of one or other of those that previously proved useless, yet let not our researches here terminate. Humanity, the honour of our profession, a thousand considerations still make a loud appeal to us for further efforts. No malady incident to the human body has a more imperious claim on the utmost efforts of medical ingenuity:—a malady that carries terror in its very name! On a professional subject of such vast importance, believe me, my dear Charles, my mind has not been idle; but having never, like my valued friend your father, (who favoured the world by his admirable observations on the subject, and whose lamentable indisposition none deplores more than myself,) seen a case of hydrophobia in the human subject, I can of course have nothing to offer which is not merely speculative. However, may we not consider the success which has resulted from the trial of the artificial vesicle in the cases which are here related, sufficient to justify the effort to obviate the fatal tendency of hydrophobia, by attempting similar diversions in the animal economy.

You know, from conversations which I have formerly held

† These clusters of subcuticular effusions which constitute irregular elevations on the skin, which have been termed Nettle Rash, and which are so often and so suddenly called into action, may be considered as belonging to this class of preservatives. Although their appearance is not so very sudden, yet I do not see how they can arise but from a derangement in the action of vascular structures which admit of extravasation. One has this appearance after eating shell-fish, another after eating mushrooms, and so on. But in every instance there seems to be a peculiar feeling of distress about the stomach, frequently accompanied with some affection of the head.

with you on the subject, that I have long considered tetanus, arising during the presence of an external wound, as one of the diseases which owes its origin, like hydrophobia, to a morbid poison, brought in contact with the skin, and generated by some spontaneous process in the part affected. Ascribing it to mere irritation, I conceive, with all deference, is not admissible. That tetanick symptoms may arise from simple irritation, I am aware, as in hysteria, but this species is without danger. Very probably those cases of tetanus, caused by a wound of a nerve or tendon, are excited also by simple irritation. Have we not seen fatal tetanus occur after amputation, when the stump has been nearly healed, and the constitution apparently sound? As we must admit that the glandular apparatus within the fauces of a dog, which to-day secretes a bland and innocuous fluid,* can to-morrow, by an alteration in the process, secrete a deadly poison, so we must, I conceive, admit that bland pus on the healing stump may, in as short a space of time, become so altered in its qualities, by the vital machinery, that its contact cannot be borne without these terrible commotions in the constitution. Recollect the case of our poor friend Ludlow who lost his life in this way from the puncture of a thorn in the finger. In this case the mere irritation arising from the wound was so trifling, that he had not even given himself the trouble of extracting the thorn till after symptoms of trismus had actually appeared. Recollect, too, the marked similitude of this disease to the hydrophobia, and that the sufferer expires after the same lapse of time in one instance as in the other.†

As in hydrophobia I deem every new and rational expedient really worthy of serious consideration, I would also invite attention to some efforts made through the grand sympathetick connection of the brain and nervous system, in tetanus. In the present uncertain state of our knowledge of this subdivision of physiological inquiry, we can prefix no limits to the range of these influences.

* See remarks in Inquiry into the Causes and Effects of the Variolæ Vaccinæ.

† It may be said that this theory does not explain the causes of spontaneous tetanus; but it must be observed that a pimple, deranged in its action by any external interference, under peculiar circumstances, might produce it; for, in this instance, as in any of a less minute kind, a healing process must necessarily go forward. The spontaneous origin of tetanus is, at all events, a subject of much doubt. Dr. Collee has ingeniously maintained that the trismus nascentium and traumatick tetanus are the same; the former arising from the suppuration of the umbilical cord. In proof of his assertion, he has pointed out that the Negroes of the West India Islands, among whose infants the disease was particularly fatal, scarcely know it, since they have been habituated to dress the divided surface with the ol. terebinth. and use cold bathing afterwards daily. See Dublin Hospital Rep. Volume I.

At all events, whatever may be the results of more experience in these or other diseases, if you think them worthy of it, you have my leave to submit these hints to publick attention; conceiving, that if it were merely to publish the advantages which have resulted in the cases given, it would have been wrong to withhold them from the world. As the practice has been successful in so many instances occurring to myself, as well as other practitioners, the event cannot with justice be imputed to coincidence.

Do not let us forget, that alteration of structure, and diseased action, are two distinct things, though one may produce the other: but it is with diseased action that we must hope to grapple with success by our present plan. I must here observe that where a vital part is so deranged that it may be said to have fallen into ruins, little can be expected from this or any other plan of treatment.

With regard to modes of adapting the strength and management of the application to the peculiaritses of the case, my knowledge is at present imperfect. The formula which I have used, in the foregoing cases, has been for the most part as follows,—but I sometimes find it necessary to make it more active.

R. Antim. Tartrat. (subtil. pulv.) 3 ij.
Ung. Cetacei, 3 ix.
Sacchari Alb. 3 j.*
Hydr. Sulph. Rub. gr. v. M. fiat Unguentum.

The time cannot be precisely fixed in which it will perform its office, as it will in some degree be regulated by the irritability of the skin and the disposition of the constitution. A patient applied the ointment according to the formula, at night, and had eruptions next morning, which was within a space of twelve hours. He had, however, used the same on a preceding occasion in cold weather, and with a skin less perspirable: in this instance it was much tardier in vesicating. Perhaps the application of a cupping-glass, or a sponge dipped in hot water, or even friction, before using the ointment, would be advisable, where the skin indicated torpor; but the water must be carefully wiped away previous to the application. If its speedy action is required, as in tetanus and hydrophobia, to give it a

* Sugar prevents the ointment from becoming rancid.

fair chance it would be advisable that trials should be made on the thin cuticle behind the ears as well as on other parts.

In the case of a lady, where two parts of the tartar emetic and one of simple cerate were used, eruptions appeared in a few hours.

In this case I used the ointment in a great degree of strength, perhaps in its greatest; but though, by these means, I have usually expedited the eruptive process, I have been in some instances foiled. This may be owing to mismanagement of the preparation, or its application. Dr. Bradley, in his paper, says, that he ordered a scruple of tartarized antimony to be reduced to a fine powder, moistened with water, and to be rubbed in at bed time; sometimes half a drachm. He thus states the effect, which was certainly not expeditious by this mode: "On the *second or third day* after the course has commenced, the patient is harrassed by a sense of heat and itching in the part rubbed, or in the course of the lymphaticks towards the thoracick duct. If the part so affected be rubbed, or in any degree irritated (from which few can refrain at first) an eruption of small watery pustules takes place *immediately;* and if the patient, taught by experience, abstain from irritating the part, the eruption will nevertheless appear, though somewhat *later*, and in smaller quantity." Such particulars are of importance, especially with relation to hydrophobia, where it must necessarily be useless, and the faint hopes which I entertain of its benefits be frustrated, unless the effect be expeditiously produced. The irritability of the skin varies so much, even in the same individual, that the interval of its action cannot be easily determined. In the case of a gentleman, who is subject to slight epileptic attacks, which have been much mitigated by it, the influence of an irritable state of the brain upon the skin, is beautifully shown; for, when free from any pain or affection of the head, pustules cannot always be produced at all; but whenever he has a return of his disorder, they show themselves very soon after the application is made.* In hydrophobia and tetanus the greatest attention should be given to expeditious methods of producing the effect. The extent of surface on which it was applied in the maniacal cases, was rather ample.

* See a contracted state of cuticular irritability, noticed in note, p. 612.—Med. Recorder.

The stimulus of the eruptions should be kept up for some time after its first effects have been exhibited, which may be done with facility; and I do not find that patients, when a little habituated, much regard it.* Sometimes it will be necessary, as is shown in more than one of the cases. Small quantities of a more diluted ointment,† by re-application to the same part, will answer the purpose; but, if that be too tender, it may be advisable to renew it on some other. It will be also necessary to let the pustules die away gradually, as the sudden loss of their specific stimulus may be injurious to the constitution.—We have yet to ascertain whether it is essential on what particular part it is applied, and whether the sympathies arising from applications made on different parts admit of distinction. We must consider all that is now said respecting its application, as merely pointing out a stepping-stone, and not absolutely conclusive. There may be other applications, which may produce pustules more expeditiously. I have known vesicles brought out by a liniment of sulphurick acid and oil, but without having the same influence, *because their constitutional action is probably different.* A recent communication, sent me by Mr. J. Fosbroke, who has interested himself in my ideas made known to him on the subject, contains experiments on these latter heads, which, as far as they have gone, are very satisfactory. He writes:—

"I have not neglected to seize opportunities of repeating your experiments with tartar emetick in different affections, with some variations in the formula. The results, as follow, were taken clinically, with minute and particular attention.—An ointment of tartar emetic, formed by uniting as much of this salt with the savin cerate, as half an ounce of the latter would envelope, was tried by me, in the case of a young lady who laboured under hysteria, and latterly under that degree of torpor of the abdominal viscera, from sudden cerebral compression, probably about the origin of the nerves, that the state of the bowels might be said to amount to temporary paralysis. Early in her complaint, and before simple hysteria was suc-

* A gentleman who derived great benefit from the use of the ointment in a case of severe chronic rheumatism with lumbago, informed me, that the troublesome itching he felt from the vesicles in the course of their progress was effectually allayed by the use of the following cerate, spread on linen, and applied to the part.

† Melt together equal quantities of unsalted butter and bees-wax. Let it remain over a gentle fire as long as any scum arises, which must be carefully taken off.

ceeded by those vehement irregular determinations which produced the worst symptoms, the ointment was thus used, and vesicles appeared within twenty-four hours; but at first excited no predominant sensations. On the following day, the 11th of March, the cutis was so generally under the influence of the action of this irritant, that eruptions had made their appearance with heads containing a serous secretion about remote parts; of these she complained, and also of extreme irritability of the skin, and soreness at the bend of the arm, where it was applied on account of the thinness of the cuticle and susceptibility of the part. Though in a case like this, of complicated constitutional disorder, every action could not in anticipation be subdued by the influence of a solitary remedy; yet we all observed a cessation of hysterical aberrations after the developement of the vesicles. When they had died away, the *risus hystericus*, and some other phenomena of this state of constitution recurred. I then re-applied the ointment at the nape of the neck, where a blistered surface had recently healed. This was done at night, and before the following morning vesicles began to form, and an abatement of the hysteria followed. In a second case, in which the patient was affected with those morbid sympathies of the head, joints and muscles, which have been observed where the mucous linings of the intestinal canal are clogged with vitiated mucus, in consequence of over-action of an irritative rather than inflammatory nature, the same form of the ointment was used, not, however, so much on account of these symptoms, which merely represent the case partially, as of others affecting the chest, from a similar condition of the bronchia. His respiration had been so impeded by these lodgments of mucus, that he had been attacked by symptoms like those of spasmodick asthma, and considered by a preceding medical adviser as possessing the complaint in an incurable degree, a prognostic, however, which certainly proved fallible. Suspecting if disordered function of the skin might have had any share in the patient's malady, I made inquiry whether he had ever had any eruptive affection about him: he told me, that two years ago he had had pustules about his body and face, with watery heads, afterwards becoming purulent. He was persuaded by a medical practitioner that his disorder was the itch, and was cured by external applications in consequence of this

opinion. After this time constitutional disorder came on, and whenever his skin became dry and torpid from chills, his complaint increased.—I give this detail in proof of the axiom which you have laid down, that "diseases of the skin are diversions in the animal economy for transferring diseased action from parts vital to parts not vital."—I remember the expression too with which you continued, "that every pimple with a vesiculated head, has an errand to perform for the benefit of the constitution."—The ointment was applied, and pustules in a full crop, came out in *four hours*, very large and full of fluid.* This will be gratifying, as you expressed much anxiety for the early appearance of vesicles in the experiments which you have proposed in tetanus and hydrophobia. The patient at the same time took the acet colchici, neutralised with magnesia, and tartar emetic, which dislodged great quantities of mucus and slime in both lines of the mucous tracts, the pulmonary and intestinal. Under the combined influence of these he improved rapidly, and is now recovered.

An accident in practice has enabled me to exhibit the active powers of this external stimulus in a strong point of view. A blundering fellow, from self-suggestion, carried a box of the ointment intended for one patient to another, with an irritable ulcer on the forepart of the tibia. He delivered it to the patient with this significant recommendation, "Here is the very right thing itself." The daughter of the patient, pleased, according to feminine refinement, with the delicacy of the colour, and no proselyte to the Virgilian adage of "*Nimium ne crede colori*," immediately applied it with extraordinary promptness, and very cheering auguries of the beneficial influence of the remedy *expectante*. But the disappointment that followed almost baffles description. Though washed off with immoderate ablution and pains and haste, far exceeding that with which it was applied, the muscles were thrown into violent spasmodick contractions, adequate to render the patient apprehensive that the foot would quit the leg. Poultices being put on the irritation abated, but did not entirely subside until the patient had sustained a severe rigour.

This case recalls to my recollection one related by Sir Astley

* The part inflicted was the sarah, cordis, which I have reason to think is very susceptible, and a very general situation of herpetic vesicles.

Cooper in his Surgical Lectures, where similar spasms of the muscles attached to the vertebral column, followed its inunction in this region of a strumous subject. I applied the ointment in a fourth case of very acute inflammation of the mucous membranes of the bowels. It was rubbed a little above the umbilicus, where pain was most severely felt, over scarifications purposely made by the usual instrument, a cupping-glass being previously put. I saw the patient eight hours afterwards, and vesicles had formed a large diameter round the edges of the incisions. Next day they became excessively painful. The centre now contained a black depression, appearing like an incipient sphacelus, or that sort of black eschar which happens when the cutis has been killed by burns. The pain endured was short, but *very severe*. A poultice was applied, which gave ease; and from this time the vehement pain and straining of the bowels rapidly subsided. I am inclined to think that the ointment made a great impression on the diseased action, but active treatment in other respects being conjoined, it would be partial and perhaps erroneous to attribute success to it alone. A brief relapse took place in this case, when scarcely any thing more than the ointment was had recourse to, and the malady rapidly subsided. I am satisfied, however, that this mode of application is best calculated to ameliorate *extreme* cases quickly and essentially. But I have seen enough to recommend caution in so using it in the cases of children, that is, over scarifications in epidemick affections, and in very irritable and debilitated constitutions. The second day's age of the pustules is the period at which they appear to pierce the cutis and affect the constitution most decidedly."

The following letter from my relative, the Rev. G. C. Jenner, came too late for insertion in its proper place; but, as its contents are so interesting, you will not dislike seeing it where it is.

My Dear Sir,

The benefit which I have received from the use of tartar emetick ointment, in a troublesome complaint of vertigo, with which I have been affected for several years, has induced me to pay a more minute attention to the salutary effects of that remedy. The following case, which occurred under my immediate observation, affords such a striking and unequivocal proof

of its efficacy, that I could not forbear communicating it, as perhaps it may not be too late to be added to the testimony you are about to publish on this highly interesting subject.

William Holloway, ætat. 26,—Very tall, and of rather a spare habit, about the end of December or beginning of January last, was attacked with violent pain in the left side, and considerable swelling about the region of the liver, with most of the usual symptoms that attend hepatitis, together with others indicative of pulmonary affection. He was bled, blistered, and took various medicines, under the direction of several medical gentlemen in the neighbourhood. These remedies afforded him a temporary relief; but he soon grew worse, and his malady continued to increase for six weeks, when I mentioned his case to you. By your advice, I furnished him with some of the ointment of tartarized antimony, and directed him to rub it on the chest. In twenty-four hours eruptions appeared. The enlargement about the liver soon began to subside, the pain abated, and, at the expiration of a month, he was able to follow his usual occupation of a mason and bricklayer.

In September last, during the unsettled weather, he went to assist a neighbour in securing his corn; when, after using great bodily exertion, and drinking freely of cider while he was very warm, he felt himself much indisposed, and in two days afterwards was seized with chills. The pain in the side returned, attended with pain on the top of the shoulder and in the chest, shortness of breath, cough, quick pulse, (I never found it under 120) and great debility. He now used the ointment, unassisted by any internal remedy. He received it from me with the most enthusiastick rapture, and used it more profusely than I intended, not only on the chest but on the shoulder, and wherever he felt pain. A large crop of pustules was the result, which maturated, and continued to discharge plentifully for nine days, when he was able to resume his work, and is now free from all complaint.

I intended to have given you the particulars of this man's first sickness; but I thought, as he took a considerable quantity of medicine, his recovery might have been attributed to that, and not to the ointment. In his second illness the advantage from the ointment was decisive.

I may here remark, that a two fold benefit was derived from

the use of the remedy. One part belonging to my province as a clergyman, and the other to your's as a physician. He was so sensible of the mercy of Divine Providence, bestowed on him through the means of the ointment, that, from being addicted to drinking, and consequently idleness, he is become sober, serious, and industrious; and I hope no temptation will lead him to relapse into his former vicious habits: for, if he does, it is more than probable a return of his bodily complaints will soon after be the consequence.

With my best wishes,

I remain, ever truly yours,

G. C. JENNER.

Stone, Nov. 10th, 1821.

P. S. I was very particular in the selection of the tartarized antimony (emetick tartar) I made use of. It was prepared from your original recipe, published many years ago in, I believe, "The Medical Communications."

I would here remark, that the tartar emetick which I am using is prepared according to a recipe formed and published by myself thirty years ago. By a very simple process it is done with ease and uniformity, admitting of two degrees of purity; the highest, which furnished it in a crystallized form, being merely a slight extension of the method. Perhaps that afforded by the college is fully efficacious.*

Permit me, by way of conclusion, to recapitulate the principal points of inquiry which are here submitted to your consideration for more complete elucidation.

1. The peculiar influence of factitious eruptions, in contradistinction to simple counter-irritation.

2. To what extent the sympathy of the constitution may differ in eruptive affections which are confined to the surface of the skin, and in those which perforate it.

3. The applicability of the conclusions to different methods of varying artificial eruptions, with the view of calling into action the different degrees of sympathy.

4. How far the peculiar constitutional influence results from the *eruptive* form of the local irritation excited, and is analagous with the laws of secretion.

* See the Transactions of a Society for the Promotion of Medical Knowledge.

5. To what extent the analogy between artificial and spontaneous eruptions, in the exchange of diseased actions, obtains.

6. How far the brain and nervous system are the media through which spontaneous eruptive diseases and artificial eruptions influence diseased action.

You are to consider what I have here given you as a concise history of the effects of tartar emetick on the skin, as far as I have hitherto considered it as important. Many more cases than I have here detailed have recently occurred, some in their nature so very interesting that I can scarcely avoid presenting them. Take, if you please, the following outline of two of these, with a promise that you may expect them given more fully, as they are so very important, on a future day. One is a case of hysteria, in a young lady of a peculiarly delicate constitution, and attended with symptoms of rare occurrence in this disease. The morbid sensibility of the spinal cord, from its extremity to the brain, was so evident, that merely walking across a room, if her steps were not cautiously attended to, gave an intolerable jarring sensation from the lower portion of the spine to the brain itself. It was of three months standing, and she had been attended by gentlemen of highly distinguished eminence in their profession; but the ordinary remedies availed little. The other was a case of scrophulous ulceration and thickening of the periosteum of the left fore-arm, which, in spite of those remedies deemed most officacious, had been gradually advancing nearly for the space of three years, and very little hopes were entertained of the limb's being saved. Seeing the efficacy of the artificial pustule, in internal derangements of the vital organs, I recommended the patient to apply the ointment on the sound arm. After it had produced its usual effect a few days, the wounds assumed a new aspect, and the healing process went on with such wonderful rapidity, that at the expiration of a little more than a month, one out of three wounds was healed, and the other two fast approaching towards it, with a sensible reduction of the thickening of the periosteum; but here, for the present, I must drop the subject, and hasten to subscribe myself,

My dear CHARLES,
with best wishes,
your faithful friend and servant,
EDWARD JENNER.

Berkely, Nov, 1821.

ARTICLE VII.

MATHEMATICKS.

MATHEMATICAL PROBLEMS BY T. J. MATTHEWS.

THE following is given as an example of the application of the indeterminate analysis to the solution of physical problems.

It is required to assign such ratios to the masses and velocities before impact of two perfectly elastick balls meeting in the same or opposite directions as shall render their momenta after impact equal.

Let us first suppose that the velocity v of the lesser ball is $= o$, then calling the larger ball in reference to its quantity of matter, B, its velocity V, the quantity of matter in the lesser ball b, its velocity v, we shall have for the velocity of the ball B, after impact $\frac{B-b}{B+b}V$, and for that of the ball b, $\frac{2B}{B+b}V$, the momenta will therefore be $\frac{B-b}{B+b}BV$, and $\frac{2B}{B+b}bV$, respectively, which are required by the question to be equal; therefore $\frac{B-b}{B+b}BV=\frac{2B}{B+b}bV$, which becomes by reduction $(B-b)\ B=2Bb$ and consequently $B=3b$ that is the greater ball must be three times as large as the lesser.

If the velocity of the lesser ball be directly opposite to that of the greater, we shall have $\frac{(B-b)V-2bv}{B+b}$ = velocity of B and $(\frac{B-b)v+2BV}{B+b}$ = velocity of b, after impact, and therefore $(\ (B-b)\ V-2bv)\ B=(\ (B-b)\ v+2BV)\ b$. Now as the ratios only of the masses and velocities are required, let us assume $b=1$, and $V=1$, $m:1$, the ratio of B to b, and $n:1$ that of v to V, then $B=mb=m$, $v=nV=n$, and the equation becomes $m^2-m-2mn=mn-n+2m$, and $m^2-3\ (n+1)\ m=-n$, or $m=\frac{3+3n+(9+14n+9n^2)^{\frac{1}{2}}}{2}$. In order to assign such a value for n as shall render the above expression rational, we assume $(9+14n+9n^2)^{\frac{1}{2}}-3+\frac{2p}{q}$, then we have $n=\frac{6pq-14q^2}{9q^2-p^2}$ where taking $p=5$, and $q=2$ gives $n=\frac{4}{11}$ and $m=4$, so that $B=4$, $b=1$, $V=11$, $v=4$, and the momenta after impact are each 100.

Finally, if the velocities are in the same direction, we have $(\ (B-b)\ V+2bv)\ B=(2BV-(B-b)v)\ b$ or $m^2+3\ (n-1)\ m=n$, whence $m=\frac{3-3n+(9-14n+9n^2)^{\frac{1}{2}}}{2}$ assuming $(19-14n+9n^2)^{\frac{1}{2}}=$

$3n-\frac{p}{q}$ we have $n=\frac{p^3-3q^3}{6pq-14q^2}$ where taking p=4, q=1, gives $n=\frac{7}{10}$ and $m=\frac{7}{5}$ so that if B=7, b=5, V=10, and v=7, the momenta will be each 630 after impact.

If *p* be taken=5 and q=1, in the last example then n=1, and m=1, in which case there can be no impact.

Dr. Hutton, in his course of mathematicks, gives a formula for the calculation of the resistance to military projectiles, but the following, founded on the same principles, is more correct in the coefficients—viz., .00002827v^2—.006259v=resistance. The following table exhibits the results of calculations founded on the two theorems, and a comparison of these with the resistances ascertained from experiment.

TABLE OF RESISTANCE.

Velocities	Hutton's results	Results of experiment	Results of my formula
300	1.15	1.85	.66
400	2.57	2.81	2.04
500	4.59	4.85	3.93
600	6.94	6.69	6.42
700	9.00	9.44	9.47
800	13.38	12.31	13.08
900	17.37	16.94	17.38
1000	21.58	21.88	22.01
1100	26.00	27.63	27.32
1200	32.44	34.13	33.20
1300	38.49	41.31	39.64
1400	45.05	49.06	46.65
1500	53.14	57.25	54.32
1600	62.74	65.60	64.42
1700	67.86	74.15	71.06
1800	78.48	82.44	80.33
1900	83.62	90.44	90.16
2000	94.28	99.06	100.56

The experiments were made with a ball 1.965 inches in diameter, and 16 oz. 13 dr. weight.

It will be seen, in the above table, that the results of my formula, particularly in the higher velocities, accord much nearer with experiment than those of Hutton.

ARTICLE VIII.

MISCELLANEOUS.

AMERICAN INTELLIGENCE.

Foreign body three months in the Trachæa.

WE have received from our attentive correspondent Dr. William Wood, Jr. of St. Clairsville, the history of a case which may serve to show that when foreign bodies are lodged in the trachœa, life may be preserved for months, and the extraneous substances alternately ejected by the efforts of the system. In this case a boy nine years old was taken while in a wheat-field with a violent cough leading to discharges of bloody mucus, in which were observed to float several fragments of the glume of wheat. Various symptoms indicative of pulmonary irritation supervened, and notwithstanding the use of blood-letting, emeticks, cathartick, and expectorants, especially the lac ammoniack and vinegar of squill united, they continued unsubdued for nearly three months, when, in a violent paroxism of coughing, he discharged an *entire head or spike of wheat*, which measured two inches and a quarter in length, and had supported sixteen grains, the whole of which were dissolved and had disappeared. All the sinister symptoms immediately ceased and he has since been restored to health. The Doctor conjectures that this body could only have forced its way into the larynx by the child's running forcibly against it when his mouth was open and the fauces expanded, a supposition that is supported by the fact that that extremity of the ear which had been broken from the stalk was discharged before the other.

One reason given by Dr. Wood why the operation of Trachætomy was not performed in this case, is, that it was not possible to determine in what part of the pulmonary tubes the extraneous body was lodged. On this subject we have been induced to place among our foreign extracts some judicious remarks by the eminent surgeon Henry Earl, Esq. of London.

PRUSSIATE OF IRON *in the practice of Physick.—In Fever and Ague.*—We have lately received a Treatise on the use of Prus-

siate of Iron (Prussian Blue) in Intermitting and Remitting Fevers, by Dr. William Zollikoffer. The author states thirty-seven cases in which he had used it and generally with the happiest effects. We shall extract only the following general conclusions:

"The *Prussiate of Iron* possesses the following advantages over the *Cinchona officin.* as a remedy in intermitting and remitting fevers:

"1st. It is void of taste, and may therefore be much more readily exhibited than the *Pulv. Cinch. Offin.* which, to some, is extremely unpleasant.

"2d. It may be given in every stage of the disease; while the administration of Bark is confined to the *apyrexiæ.*

"3d. The dose is much smaller, being from four to six grains twice or thrice in twenty-four hours; or at morning, noon and at night: while Bark, to be effectual, must be given in much larger doses.

"4th. It never disagrees with the stomach or creates nausea, even in the most irritable state of this *viscus:* while Bark is not unfrequently rejected.

"5th. In its effects as a remedy calculated to prevent the recurrence of future *paroxysms*, it is more certain, prompt and effectual, than the justly celebrated *cort peruvian.*

"6th. and last. A patient treated with this article will recover from the influence of intermitting and remitting fevers, in the generality of cases, in much less time than is usual in those cases in which Bark is employed. In making use of the Prussiate of Iron as a remedy in disease, care must be taken to select that which is of a very dark blue, approaching to a black, having a shining coppery fracture, and adhering firmly to the tongue."

In Dysentery.—We have been favoured by our friend Dr. Drake with the perusal of a letter from Dr. Wood, detailing an account of his trials with the Prussiate of Iron in the treatment of Dysentery as it prevailed during the past summer in the neighbourhood of St. Clairsville in this state. He gave 10 grs. every two hours in new milk, commencing, in some instances, soon after the first symptoms appeared and consequently without the previous administration of the usual evacuants. Dr. Wood speaks in the most favourable terms of the effects

of this treatment, decidedly preferring it to every other to which he was induced to resort during the epidemick.

Natural History.—We have received from Mr. J. Dorfeuille the following notice of an insect plant found at Nachitoches:

"Among the wonderful objects in the Natural History of the interior of Louisiana, is an extraordinary insect found at Natchitoches. There are few persons who have not heard of the *worm-plant of China*, and of the belief among the Chinese that a worm constitutes the germ of a shrub. We are indebted to the attentions of M. de Reaumur for the elucidation of a fact so extraordinary. He has destroyed every appearance of the marvellous in this account by showing that the insect attached to the root of the plant leaves its exuviæ so intimately connected with it as to cause a belief that the root and the insect are one.

About the middle of the spring in the year 1808 I had occasion to examine an insect from which grew a kind of fungus or branched mushroom, the appearance being perfectly that of one having recently put forth its branches, but without leaves. The head of the animal appeared to be opened by the power of vegetation: the rest of the body was complete with the exception of the fore claws which had been broken off. The body was full, and upon inspection it seemed beyond a doubt that the animal was about to be metamorphosed into a plant. However, as it appeared contrary to the order of Nature for an insect to become a vegetable since bodies become more perfect by changes of form, I was induced to examine it more closely.

Description.—The Insect-plant is 18 lines in length, composed of two parts, animal and vegetable: the animal is 8 lines in length and 4 in breadth; the vegetable is 10 lines in length, divided into two branches which exhibit appearances of many others at their extremities. The eyes of the thorax are round, the latter smooth and bordered with small hairs: the abdomen has eight segments striated at their insertion: the antennæ are hairs composed of six articulations and situated below the eyes; with a trunk or sting inclosed in a sheath near the breast: this sheath has two articulations: the sting is accompanied by

another sheath, bifid and grooved, in which it slides: behind the sting is another sheath or trunk with two articulations containing a liquid substance. The animal has six claws: as the hinder ones were wanting I cannot describe them. The fore claws are armed with a kind of palm like those of the *Gryllo Talpa*. To this is joined another part, by the side of which it moves like the blades of a pair of scissors. This piece is designed for securing the prey for the nourishment of the animal. To perfect the use of this last named organ nature has given it an articulation in the middle which is armed with a forceps. Thus this fore claw is composed of five parts all very strong. The elytra and the wings, which are half the length of the elytra, are transparent and tough.

All the parts of the insect which I have described being very small, I was obliged to detach them successively and examine them with the microscope; but what was my astonishment when, after having taken off all the external parts, I found the body of the animal was composed of the same substance as the small branches which I had supposed planted in the head. Having but one insect* I was unable to make such observations upon it as would enable me to form a positive and unquestionable judgment respecting it. I shall therefore only offer the following opinion on the subject.

Let us suppose an insect metamorphosed under the earth and that its larva leaves its exuviæ after having prepared its bed in the soft earth. When the insect changes its form it leaves a cavity in the earth lined with the exuviæ of the chrysalis. A species of mushroom is very common in these countries, and immense truffles are found in Natchitoches which are themselves full of mushrooms or fungi. One of these fungi fills the place left by the chrysalis and rises above the earth. I think this opinion entitled to the more weight because the chrysalis is opened precisely at the place from which the perfect insect issues. This explanation may be incorrect, but it is better to endeavour to explain, in this manner, this phenomenon of nature, than to allow the imagination to entertain the

* Another specimen has since been procured in Missouri which is now deposited in the Western Museum, with this difference, that the fungus proceeds from the Larva of the Lucanus interruptus instead of the exuviæ of another species of insect. A Plate will be engraved for the next number of the W. Q. R. illustrating both specimens, accompanied with a description of the original deposited in the Western Museum.

idea of a marvellous creation contrary to the order of things, for nature never retrogrades. I consider this insect as belonging to the order Hemiptera and as being the exuviæ of a species of Cicada peculiar to Natchitoches."

Dr. Horner's Discovery.—A muscle has lately been discovered by W. E. Horner, M. D. Ass. Prof. Anat. University of Pennsylvania, situated at the internal commissure of the eyelids, on the posterior part of the lachrymal duets and passing from the flat surface of the os unguis towards the puncta lachrymalia, which has a curious and interesting influence on the position and functions of the puncta and of the eyelids.

Philad. Journal Med. and Phys. Sciences.

Dr. Physick's Discovery.—Great attention is at present directed to a discovery, to which we think Dr. Physick is entitled. He has found, much oftener than might be suspected, that a species of consumption, and in many instances, of a very formidable character, is produced by the irritation from an elongated uvala, and which is relieved by simply cutting off a portion of it. Expecting to receive for our next number a communication on the subject, we shall now only further observe, that such is the frequency of the occurrence of this form of the disease, that six cases of it have come under our own observation within the last year, a large proportion of which, we add with pleasure, were cured. *Ibid.*

Useful Minerals in North Carolina.—(Extract of a recent letter from Professor Olmstead.) I have recently performed a tour westward, almost to the blue ridge through the counties of Rockingham, Stokes, Surry and Guilford. The objects which among others were presented to us were the following:—An independent coal formation hitherto unobserved, embracing at least two beds of coal, fine varieties of sandstone, numerous distinct strata of clap, and along with it a compact siliceous black carbonate of lime that receives a good polish, forming a handsome black marble.

It answers well to the description of the lucullite except that (owing probably to its containing a great portion of silex?) it is

very fusible. We might suppose it basalt, but it effervesces freely. Westward of this secondary, I fell in with the narrow strip of transition laid down in Mr. Maclure's map. In this near Germantown, is a wonderful formation of lignite resting in numerous varieties of Potter's clay comprising the compact, heavy, chocolate coloured, used for stone ware, the adhesive which cuts like putty, and a bright yellow ochre. The extensive iron beds, the limestones, the ochres of Stokes and Surry furnished objects of much interest. There abounds also in this region whitish shelly granite, full of decomposing feldspar, and near it, as might be expected, very fine white clays. Near the blue ridge we met with a lofty precipice of "Copperas Rocks," some of them so far decomposed as to have fallen down in huge masses. In Surrey we found a bed of the earthy oxide of manganese; and in Stokes, a bed of plumbago of much the same quality as that in Wake, only not so slaty.

American Journal of Science and Arts.

FROM FOREIGN JOURNALS.

Remarks on a case of Bronchotomy, by HENRY EARL Esq.—In the course of last Autumn, I had an opportunity of seeing the subject of the preceding paper; and considering the case as one which deserved to be recorded, I requested the author to draw it up for the Society. It appeared to me to possess considerable interest in illustrating the different degrees of sensibility between the larynx and the trachea; and in explaining, in a satisfactory manner, the great urgency of the symptoms, and the imminent danger which attends cynanche laryngæa. As a valuable additional fact in support of the practice which was so ably pursued, I felt anxious that the case should not be consigned to oblivion; more particularly as I am not aware of any analogous case published in this country.

In searching for information on this subject in foreign publications, I find many more instances of persons who were suffered to perish for want of timely assistance, either through the timidity and neglect of their medical advisers, or the ignorance and obstinacy of their friends and relatives, than of cases successfully treated. No less than seven fatal instances are recorded by M. Louis, in the excellent paper which he published

on this subject in the Memoirs of the French Academy, in which he so ably points out the propriety of performing the operation of tracheotomy, and shows with what facility and safety it may be performed. Other fatal instances are recorded in the same valuable collection of memoirs; and I have lately heard of three recent cases in this country, in which death was caused by the presence of foreign bodies in the trachea; in addition to the instance of the child who swallowed a portion of sealing-wax, an account of which was read to the Society at the close of the last session. In all these instances sufficient time was allowed for the employment of the only rational and effectual means, but probangs, emeticks and expectorants were resorted to until a fatal termination was put to the sufferings of the individuals.

On the other hand, M. Pelletan, in his Clinique Chirurgicale, has related some successful and encouraging cases, in which he removed the foreign bodies and rescued his patients from impending death. Rau, Heister, Verdyc, and Engel, mention similar cases.

From the narratives of cases in which the operation was not performed, it would appear, in many instances, that the medical men and the friends of the patients have been deceived by the state of calm which so often succeeds after a foreign body has passed the rima glottidis; which has induced them to draw very erroneous conclusions and to doubt the presence of any thing in the trachea. This comparative tranquillity is, however, most deceptive, and is certain, sooner or later, to be succeeded by serious and most distressing symptoms which terminate fatally. Instances are on record in which patients have survived months and even years with foreign bodies in the windpipe, which caused constant distressing cough and purulent expectoration. In some of these cases, after great efforts and a threatening of suffocation, the patients have succeeded in getting rid of the foreign bodies, but the diseased action which they produced has continued, and the patients have died with every symptom of pulmonary consumption. Interesting records of such cases will be found in Bartholin,* Tulpius,† Hechsteterus,‡ and Schurigius.§

* Histor. Anatom. cent. ii. Hist. xxvii. and cent vi. Hist. xv.
† Lib. ii. Obs. vii.
‡ Obs. Decad. vi. cap. x.
§ Chyologia Histor. Medic. cap. - - -

That the operation of tracheotomy is the only effectual and rational mode of relieving persons with foreign substances in the windpipe, is a truth which cannot be too often inculcated; and it is not less true and important, that the operation should be performed as promptly as possible before symptoms of irritation and inflammation have established themselves, which it may not be in our power to arrest even by the removal of the exciting cause. If any additional arguments were required in support of the immediate adoption of the operation as soon as it has been ascertained that any foreign body has passed into the windpipe, I would urge the consideration that the patient's life is in the most imminent and constant danger from the possibility of the substance being again forced, by any violent effort of coughing, into the rima glottidis, where it may cause almost instant death before any assistance can be afforded; of which occurrence numerous instances are recorded, and many more have, no doubt, taken place.

Apprehensions still exist, in the minds of some medical men, of the probable difficulty of cutting on the exact spot where the foreign substance may be. This opinion was advanced by Haller, and I have reason to believe that it is still entertained. With a view to dispel these doubts it will perhaps be admissible to state briefly the experiments of M. Favier, related in the 14th volume of the Memoirs of the French Academy, page 445, *et seq.* M. F. introduced irregularly shaped bodies through the rima glottidis into the trachea of a dog, and afterwards divided several rings of the trachea, when the foreign bodies were forcibly propelled by a strong respiration. These experiments were several times repeated with the animal in different positions and always with the same results; from which the author draws the following conclusion: that the fear of not being able to meet with the foreign bodies, ought not, on any occasion, to deter practitioners from operating, as they will, in all cases, be propelled through the wound in expiration.

These experiments are certainly very satisfactory, and, no doubt, in the majority of cases, foreign bodies would be thus expelled if the opening were made sufficiently large. The result of these trials likewise tends to diminish the apprehensions which would naturally arise from the introduction of any blood during an operation. Still, however, cases will occur in

practice in which this spontaneous expulsion cannot be depended upon. Pelletan relates two instances, in one of which, from the form of the body (the jaw bone of a mackerel,) and in the other, from its situation (in the left ventricle of the larnyx,) the substances required to be extracted, which he performed, in both cases, with perfect success.

28, *George-street, Hanover-square.*

Professor Osiander on Uterine Vagitus, and the respiration of the Fœtus.—"At the sitting of the Royal Society of Sciences of Gottingen, on the 11th of November, 1820, the Director, Professor Osiander, read a memoir, containing a series of observations on the vagitus, respiration, and vitality of the human fœtus, during and immediately after parturition. He has, in this paper, given the results of his experience on these points for upwards of twenty years. The principal facts are the following:

"1. The human fœtus, whether full grown or premature, can breathe and cry when the head has passed the external parts, although it be closely confined from the narrowness of the parts, and whether the delivery has been effected by the natural efforts, by the hand, or by the forceps. The author has confirmed this assertion by twelve cases, for the most part observed in the lying-in hospital.

"2. In difficult delivery, effected by the forceps, the child cries at the moment of the passage of the head, although the forceps have not been removed.

"3. In nine cases the child breathed and cried as soon as the head was born, although the funis was twisted at least twice round the neck, and in some of the cases very tightly; in four cases the cry was heard, and the child seen to breathe immediately after the funis was disengaged.

"4. Two children of unusual size, of which one weighed ten pounds, cried as soon as born, although one had been fixed in the pelvis for two hours, from the narrowness of the genitals, and although the anterior fontinelle was perfectly ossified.

"5. Two children cried immediately after birth, although the neck was compressed by the arm and hand, the latter having been expelled with the face.

"6. *Four children* born with the membranes unbroken and transparent, *being surrounded by the liquor amnii, were seen to open and shut the mouth as a fish under water.*

"7. This phenomenon was not observed in another, born under the same circumstances.

"8. Two, on the contrary, opened the mouth, breathed, and cried, notwithstanding the face was covered with the empty membranes.

"9. One child, born, and covered wholly by the membranes, ruptured them and drew them over his face.

"10. One child cried as soon as the head was expelled, although the mouth was filled with blood escaping from the mother.

"11. *Some children delivered by the feet breathed and cried, although the head was still in the uterus.*

"12. In one instance, the waters having escaped, and the pains being very severe, *the child was heard to cry in the uterus so distinctly, that many students present authenticated the fact by their signature in the note-book of the Institution.* The crying was heard under the same circumstances, in his private practice, by Professor Osiander, by the mother, and the standers by.

"13. A dropsical child, extracted with much difficulty, gave signs of life.

"14. A dead fœtus, affected with anasarca and ascites, according to the mother, moved distinctly before birth.

"15. A child died during labour, and was extracted quite dead. Although no air had been inflated, the lungs were found considerably distended, and floated in water, a proof that respiration had been perfectly performed in the uterus before birth.

"16. A deformed child, like a dead fœtus, breathed after birth with a sensible noise, and died in a few moments. On dissection no traces of air were found in the lungs, although they were very expansible.

"17. A child, prematurely born, had the skin of an orange colour, and the cuticle was detached in many parts; it lived, sucked, and left the institution alive at the same time with the mother.

"18. A blind woman was prematurely delivered from the effects of fright. The child breathed freely during delivery, but died in a few moments: the lungs sunk completely in water.

"19. In a child born dying, blood flowed from the umbilical

vein, although the circulation had ceased in the umbilical artery.

"20. A child was extracted with the placenta, the cord being neither cut nor tied. Pulsation was observed for ten minutes in the umbilical arteries, but it was not until the child had freely breathed that the dark blue of the blood was changed into a bright red colour.

"21. The heart and carotids pulsated for a length of time without respiration, but there was no pulsation in the umbilical arteries. Blood flowed when the jugulars were opened, but it was impossible to restore the child to perfect life, although powerful contractions were excited in the muscles for many hours, by the galvanic pile; the other signs of life were wholly lost.

"22. A child had advanced very slowly during labour, and at last seemed altogether fixed. On examination, the very extraordinary observation was made, that the child held the umbilical cord firmly with its hand, so that it was necessary to open the fingers to set this part at liberty. At the institution of Gottingen, where it is customary to weigh all the children that are born, it is not uncommon to see some of them clasp thecords of the scales so firmly, that it is necessary to employ some force to oblige them to quit their hold. Should we any longer wonder that Hercules strangled serpents in his cradle?"

Quarterly Journal of Foreign Medicine, for April, 1822.

On Diabetes; by Dr. Trotter.—Since I had occasion to address you on the subject of *Diabetes Mellitus*, and the effect of *pure magnesia* in the cure of it, three confirmed cases have come under my observation. The first, in a young man, G. L. æt. 28, who had possessed a fine person, being six feet two inches, and had enjoyed excellent health. The disease began in 1818; and, when he found himself too weak for his employment in a colliery as a driver, he was discharged. At the time he applied to me he was extremely emaciated, and with much difficulty walked to my house. From his appetite being so keen he scarcely suspected himself labouring under disease; and his father and brother, with whom he lived, complained that he devoured all the food intended for them. His drink, in the day, now amounted to sixteen quarts, and the urine made much about that quantity. The bowels were slow, the skin dry, and the urine sweet as honey.

This poor fellow had only eighteen-pence a week for his parish allowance, and I endeavoured, by representing his case, to get it increased; but the overseer would only consent to add a single shilling; so that the medicine which I wished him to pursue could not be tried. I then made his case known to one of the coal-owners, that he might be received into the Infirmary; but he died before this could be accomplished.

2d.—The next case had a more fortunate issue. J. H. aged 50, a married woman, applied to me in November, 1821. She was tormented with thirst; drank eight quarts of water, and made eight quarts of urine, in the day, of a peculiar smell, which grew frothy in a short time, and was quite like sugar to the taste. She was losing flesh, though she had a great appetite, and found herself growing weak. These complaints began about six months ago. She was ordered to take 3jss of magnesia in twenty-four hours, which quickly opened her bowels; and the thirst ceased on the third evening; the water, at the same time, changed its taste and appearance, and the appetite became natural. The medicine was continued a week or ten days, and her health seemed quite restored, though her relatives had, at first, looked upon her case as deplorable.

3.—The third case was that of a young woman of twenty-two, a servant. The disease commenced two years ago. She came to me in January last, and was considerably reduced. Having no relations she was compelled to remain at service; but had now a humane mistress who was kind to her, and, by a little charity from her physician, she was enabled to buy her medicine. The drink was about eight quarts in twenty-four hours; the urine rather more, sweet as honey, and of a frothy quality; the appetite voracious, and the bowels slow; the skin dry, and the thirst constant, night and day. The menses disappeared seven months ago. The magnesia, to the amount of two drachms in the day, was immediately begun; and on the second day the thirst declined, and next day the urine fell to three quarts, and nearly natural in taste and smell. The appetite also was less keen, and the bowels profusely loose. In a week or two she found her strength greatly improved, and can now go through her work without feeling fatigued. There is, as yet, no appearance of the menses: indeed, a complaint of such a nature, continuing for so long a time, could not fail to make

serious inroads upon the constitution; and, when it arrives at a certain point, there can be no recovery. The quantity of urine is now two pints, and sufficiently saline; but, though diabetes may not return, there is still some doubt of perfect health.

I thought it superfluous to make any experiments on the blood and urine in any of these cases, as their appearance and nature were sufficiently ascertained before.

The diet, in all these persons, was the usual fare of labouring people; and the effect of the medicine seemed not to vary by any accidental change. That a diet entirely of animal matter should afford the saccharine quality to the urine, as in the first case transmitted to you before, would seem to contradict the experience of Dr. Rollo on this subject. I think, however, that eminent physician viewed the pathology of diabetes too much as a chemical doctrine. The omnipotence of a living principle in the system, is not to be denied; and, whatever processes resembling chemical combinations may be produced in the body, they can only be vicarious of this administering power. The purgative effect of magnesia, as exhibited in these patients, plainly shows a predominant acidity in the stomach and bowels: this is, probably, the *saccholactic* acid, and evolved in the process of deranged digestion. Many of the attendant symptoms can only be considered as sympathetick with this extraordinary condition of the digestive powers.

These five cases of diabetes are the proportion that I have met with in *ten thousand seven hundred persons* of the labouring class, to whom I have given medical advice since 1802; and many of them have come from very remote parts of this and the neighbouring counties. I have known about twenty instances of this disease in all; but, from all the circumstances of sex, age, temperament, season, situation, employment, habits of life, &c. I cannot form any peculiar character of predisposition that gives birth to its singular train of symptoms.

In my former communication, it was thought necessary to warn physicians against the adulterations of magnesia calcinata. What was employed so successfully by myself is the preparation of a London chemist. The purity is to be judged by the directions given by Henry to his own preparation, and I would take the article of that scientifick chemist as a standard: it is

only to be lamented that his price puts it beyond the reach of the poor patient. But, as pure magnesia is of such great value in the treatment of all diseases of what I designate by the name of *nervous temperament*, forming by far the largest class of modern ailments, I would recommend to the Royal College to petition Parliament for a full remuneration to Dr. Henry for his method of preparation, that the value of the medicine may be more generally known. I conceive the president and fellows of the Royal College of Physicians to be the proper organ for such an application.

The simplicity of the practice here announced in the treatment of diabetes, will be its recommendation to the ingenuous and disinterested part of the profession; and, to the confidence of their approbation I leave the future trials of the medicine.

Newcastle; May 4, 18[illegible]

London Med. and Phys. Journal.

Taddei's New Antidote to Corrosive Sublimate.—Professor Taddei, of Florence, has published an 8vo pamphlet, proposing the gluten of wheat as a new antidote for that dreadful poison, the oxymuriate of mercury. We have not yet seen it, but there is a very full analysis of it by A Cattaneo, in Omodei's Annals, minutely describing the origin of the discovery; the mode of preparing and administering the gluten, in which there seems to be nothing peculiar; experiments with it on animals; and a comparison of its efficacy with that of albumen, as proposed by Orfila. Taddei concludes his pamphlet with recommending the now almost disused corrosive sublimate in syphilis, care being taken to modify its effects by drinking largely of milk, barley water, and decoction of mallows, or burdock.

Annali, Univ. di Medicina, vol. xvii.

Preservation of Anatomical Specimens.—Dr. Macartney, of the Dublin University, has for some time employed a solution of alum and nitre for the purpose of preserving anatomical preparations. He finds that it preserves the natural appearances of most parts of the body more completely than spirits or any other fluid heretofore used. The proportions of the alum and the nitre, and the strength of the solution, require to be varied according to circumstances; and, in order to impregnate

thoroughly the anatomical preparations, the liquor must for some time be occasionally renewed. The solution possesses such antiseptic powers, that the most putrid and offensive animal substances are rendered perfectly free from fetor by it in a few days.—*London Medical and Physical Journal.*

On the Strong Evaporating Property of Camphor, employed as a Remedy in several Diseases; by Dr. BLODTCHER.—It is a well know fact, that camphor possesses a high power of evaporation; and that, when exposed to the open air, it soon diminishes in volume, and ultimately disappears altogether. A curious circumstance, connected with this fact, first directed Dr. Bodtcher's attention to the possibility of it being applied to the purposes of medicine. Happening to enter, some years ago, the pharmaceutical dispensary of Fridrik's hospital, Copenhagen, while labouring under a very severe headache, some bottles containing camphorated mixture were brought in from the laboratory and set on the ground not far from the doctor, who, after standing by them for a few minutes, found that his headache had entirely left him. This induced him to try the effect of the vapour of camphor in other complaints and particularly in those where the camphor itself, or any of its preparations, could not be well applied, as, for instance, in complaints affecting the cavities of the nose, the throat, and chest. The success said to have followed this new mode of employing camphor as a medicine, is most encouraging. In the worst cases of complete stoppage at the nose, (snuffles,) a piece of camphor need only be kept for a few minutes before that organ, and the patient will, in a short time, be relieved. In inflammation of the eyes it has also proved useful when held at intervals before them. In cynanche, kept either before the open mouth or the nose, it has produced the best effects. As gargles with camphor, however useful in this complaint, are not always admissible, the knowledge of the fact mentioned by Dr. Bodtcher may be of great service to practitioners. In the latter disease the vapour of warm water might be directed to be inhaled with some camphor previously mixed in it. The vapour of camphor has been found very beneficial in common and spasmodick coughs, and even in croup it would be of use if resorted to in time. The same observation may be made with regard to all kinds of inflammations of the chest.

When gout and rheumatism attack the internal organs, this important remedial agent ought not to be neglected. Experience teaches us that when camphor is applied to the external parts of the body affected by either of those diseases, the latter will often quit suddenly their original seats and settle, not without great danger, on the internal organs. When this has been the case, the inhaling of the vapour of camphor, Dr. Bodtcher thinks, will be found of great service. In all such cases it would perhaps be better to keep a small piece of camphor in the mouth, in order to secure the benefit of its evaporation. *Ib.*

Valve of the Colon overcome.—An inteligent pupil, Mr. Malcolm, discovered, that the valve of the colon may be overcome, and fluid forced in the retrogade direction, by pressing on the abdominal parietes in the right illiac region over the *caput cæcum*. This pressure has the effect of compressing the colon between the anteriour muscular parietes and the internal illiac muscle, so as to approximate the commissures of the valve, and thus to open it. Whether it be so easily overcome in the living state, I have not had an opportunity of ascertaining; but a case of hernia occurred a few days ago, where injections *per anum* passed through the valve into the ileum, and flowed out at a false anus in the left groin. This patient was not *in articulo mortis*, but had considerable strength.—*Edin. Med. and Sur. Jour. July*, 1822.

Chemical Examination of Cubebs; by M. VAUQUELIN.—Cubebs are the fruit of the piper cubeba (triandria trigynia,) a perennial plant, which grows in the Phillippine Islands, in Java Guinea, and the Isle of France.

These grains do not all possess the same colour. They are rounded and attached to a stalk. If they are examined after being macerated in water, four coverings are discoverable: the first is fleshy, and softens in water; the second is of a grey colour, and is nearly transparent; the third is thin, like the peel of an onion, of a yellowish brown colour; the fourth is a very thin white pellicle, immediately covering the grains, some of which are round and entirely fill their covering; others are flat on one side and rounded on the other; others, again, are

wrinkled and covered with fatty matter; and, lastly, there are some which are of a white colour.

A careful analysis shows that the cubebs contain the following substances:

1. A volatile oil, which is nearly solid.
2. Resin, resembling that of balsam copaiva.
3. A quantity of another and coloured resin.
4. A coloured gummy matter.
5. An extractive principle, similar to that which is found in leguminous plants.
6. Some saline substances. [*Annals of Philosophy.*

Detection of Poisons.—A paragraph has appeared in the papers, recommending blue sugar-loaf paper as a test of distinction between oxalick acid and Epsom salt: it is reddened by the former, but not affected by the latter. This is perfectly true; but a simpler test consists in wetting the tip of the finger, applying it first to the supposed salt, and then to the tongue—if oxalick acid, it tastes *very* sour; if Epsom salt, very bitter and saline.

Many restrictions have been suggested upon the sale of arsenick: the only effectual bar to the mischief that results from it, is *prohibition*. It is of no use in medicine, and should therefore be rejected from the pharmacopœia. Apothecaries and druggists need not then keep it. It is sometimes employed as an instrument of research in the chemical laboratory, which might be sufficiently supplied through other channels.

Brande's Journal of Science, No. 27.

State of the Skin, &c. in Yellow Fever.—From the facts observed by himself, or recorded by others, Dr. DESMOULINS has been led to the following conclusions with regard to the biliary secretion and yellowness of the skin:

1. That, in yellow fever, there is no increase of the secretion of bile.
2. That the black vomit and dark-coloured stools are the produce of exhalation from the surface of the intestines.
3. That the yellow colour of the skin is produced by the blood in the minute vessels of the cutis, which are in a state of congestion, analogous to that which, in the mucous membranes, gives rise to hemorrhage.

4. That the firmer texture of the skin alone prevents this likewise from ending in a similar discharge.

5. That the yellow colour, which is almost always preceded by patechiæ, is only a sort of general ecchymosis.

6. That the yellow fever is nothing else than a congestion or determination of blood to the skin and mucous membranes simultaneously, principally to those of digestion.

Lond. Med. and Phys. Journal, Oct. 1822.

Decoction of Oak bark, used as an application to reducible Hernia. —"For these many years past, I have used for reducible Hernia, either in the adult male, female, or in children, a strong decoction of oak bark, with wonderful success. In men I have succeeded in curing them from birth to 75 years of age, and in women to 50 years of age. Children are very easily cured by this means, particularly of the umbilical hernia.

The manner of preparing the decoction is, to macerate a few pounds of oak bark in a sufficient quantity of cold water, for twelve or twenty four hours, then to put both bark and solution into a large boiler, and to keep the fluid at the boiling temperature, over a gentle fire, for two or three days, adding, when required, boiling water from time to time, so that the bark may be always covered. The intention is to extract all the virtues of the bark. The bark, after this slow decoction, should be removed, washed with more boiling water, which is to be added to the strong decoction, and reduced to the consistence of nearly an inspisisitated juice. When used, it should be warmed, to suspend the astringent matter; the hernia must be previously reduced; then the groin bathed or splashed, and the tumour applied immediately after. The application should be repeated three or four times a day. In this way I have succeeded in curing hernia of many years standing, in the course of a few weeks. In general it requires a perseverance of three months. A case of double rupture, one of which the patient had laboured under for twelve years, was cured in nine days. He was 36 years of age, and had been invalided out of the public service for the complaint. In umbilical hernia, so common to children, it succeeds very soon.

The modus operandi appears to be, *first*, the corrugation of the skin and contraction of the muscles; *secondly*, increased

determination to the part; *thirdly*, a deposition of substance, most probably cellular substance, which effectually shuts up the aperture. That there is a contraction of the muscles, we are entitled to conclude, from the tumour not so readily protruding after each application of the decoction. That there is a local determination, is evident from the stimulus applied, and the heat produced. *Lastly*, that a deposition of substance takes place, we are entitled to infer, by the treatment proving effectual in the cure of crural hernia, where no muscular contraction can take place to any extent.

This invaluable remedy was mentioned to me by a merchant in this neighbourhood, who cured himself after having laboured under the disease for many years. In 1757, an hospital was constituted, near Westminster Bridge, for ruptured people, and a Mr. Lee, of Arundel Street, was appointed surgeon. This gentleman is said to have been successful in curing men belonging to the army and navy, after they had been invalided and sent to Chelsea and Greenwich Hospitals. These men were returned fit for the service. One was 74 years old, and had been ruptured for ten years. I can find no trace of the treatment adopted by this gentleman; but it is possible that it may have proceeded on the same principles."

Lizars in Edin. Med. and Surg. Jour. No. 72.

TO READERS AND CORRESPONDENTS.

Circumstances beyond our control have caused an unusual delay in the publication of the present number of the Western Quarterly Reporter, as well as the postponement of sever articles which were promised for it.

We trust that hereafter it will be more regular, and w have the promise of additional support from some gentle en who are well qualified to increase the reputation an utility of the work.

Dr. Dart's case of Lumbar Abscess, was received too late for this number.